NOVEMBER 14, 1959
VOL. 153 — NO. 20

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
SINCE 1901

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 500 N. Dearborn St., Chicago 10, Ill. Subscription $4.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

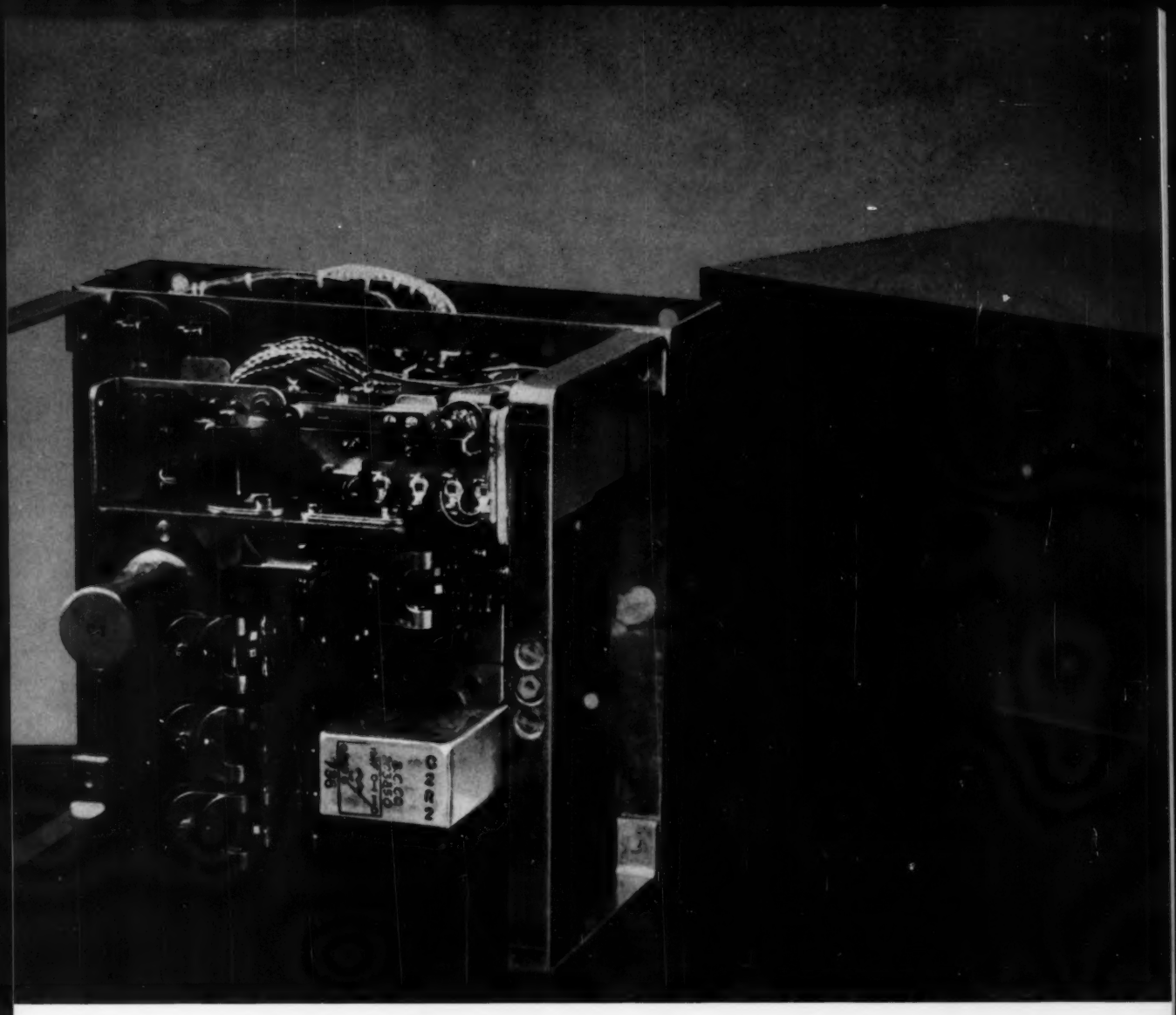
Guaranteed Circulation This Issue
13,377 of Which 12,830 Is Paid

REPORT BY TELEPHONE

Forty-five color telephones, mounted beneath rows of special observation windows, give 9,000 viewers a day tape-recorded briefing on activity at site of new Western Electric offices in New York. Story: page 52.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

Off-the-shelf PBX...
priced to sell



Your smaller business subscribers who want *effective* PBX service *trimmed to their budgets* will like this 2-line, 10-station system—available immediately *from stock.*

Using our "1573-W" 2-line telephone for each station, this system provides positive, fully selective intercom between stations. Other advantages include: hold feature on the instruments; selective line signaling; recall service without replacing the handset. Minimum wiring results in very simple installation.

Our 2-line, 10-station PBX is *customer-preferred* because it gives the utmost in simplicity, flexibility, and low cost.

Your Stromberg-Carlson representative will gladly supply full data and selling aids.

STROMBERG-CARLSON

A DIVISION OF **GENERAL DYNAMICS CORPORATION**

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630

FLASHES AND PLUGS

IT'S A PIP. Telephone subscribers in the United States have "educated" ears, well-attuned to the meaning of various kinds of sounds emitted by the lifted receiver. There is the dial tone, the "busy," and the signal which indicates incorrect dialing.

The British now have a reminder tone, which they describe plainly as "paytone." They have informed their subscribers, if they hear this new sound when they pick up the telephone, it won't be a fault in the line, but someone telephoning from one of the new trunk dialing coin boxes recently installed in Bristol, England.

The rapid "pip . . . pip . . . pip" coming from the telephone tells one, says a spokesman for the service, that "his caller has got to put in his money." A free demonstration of "paytone" can be had by telephoning any Bristol exchange, it was stated.

•

PLEASE, YOUR HIGHNESS! A Siamese kitten, having climbed a neighbor's tree, became frightened when she found herself marooned, and set up a very insistent me-owing.

All efforts to coax the cat down from its perch were futile, so the neighbor telephoned the kitten's owner.

Kitty's owner stood under the tree, fixed the animal with her eye and delivered a few, emphatic words to the pet. Whereupon the Siamese stopped the yowling, appeared to listen respectfully, arose, stretched, waved her tail, and descended to a lower branch, from which she leaped into her mistress's arms.

Why the quick response? The commands that were so effective were delivered in German.

•

GLOW, LITTLE GLOW WORM! There were repercussions in Pomona, Cal., recently when the local station KWOW played the recording, "Like I Love You," made by "Kookie" Byrnes, the star of a well-known TV series.

In the song hit, the young lover woos his lady by telephone. The plot thickens when it is discovered that she does not know who it is. It turns out, this is a wrong number.

When he asks, then, "Is this SUnset 7-7777?" she replies, "No, it's POmona 9-2600."

KWOW people didn't know it, but there really *is* a POmona 9-2600, and it is the telephone number of an exterminating company.

Hardly had the station started plugging the record, when the exterminators' telephone began to be busy—very busy—a call every five minutes during the day, one every two minutes at night.

It is reported, the exterminators at first only scratched their heads in puzzlement, but as the calling increased, they probably thought the bugs would get them for sure.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

November 14, 1959

CONTENTS

IN THE NATION'S CAPITAL 19
By Francis X. Welch

THE ETERNAL TRIANGLE 21
By A. J. Barran

1959-60 CONVENTION CALENDAR 22

MAMMOTH CAVE GETS NEW SYSTEM 24

THE PLANT MAN'S NOTEBOOK 26
By Ray Blain

PLANT MAN'S QUIZ 27
By Ray Blain

TARHEEL INDEPENDENTS REFLECT ON EXPANSION IN NORTH CAROLINA MEET 30
By Harold N. Simpson

FROM COWBELLS TO TELETYPE 32

ALASKA ASSOCIATION HEARS COMMUNICATIONS PROGRESS REPORT 34
By Martha P. Cushing

WHEATSTONE BRIDGE MEASUREMENTS—Part I 36
By John A. Bracken

UNITED STATES-PUERTO RICO CABLE LAYING LAUNCHED 38

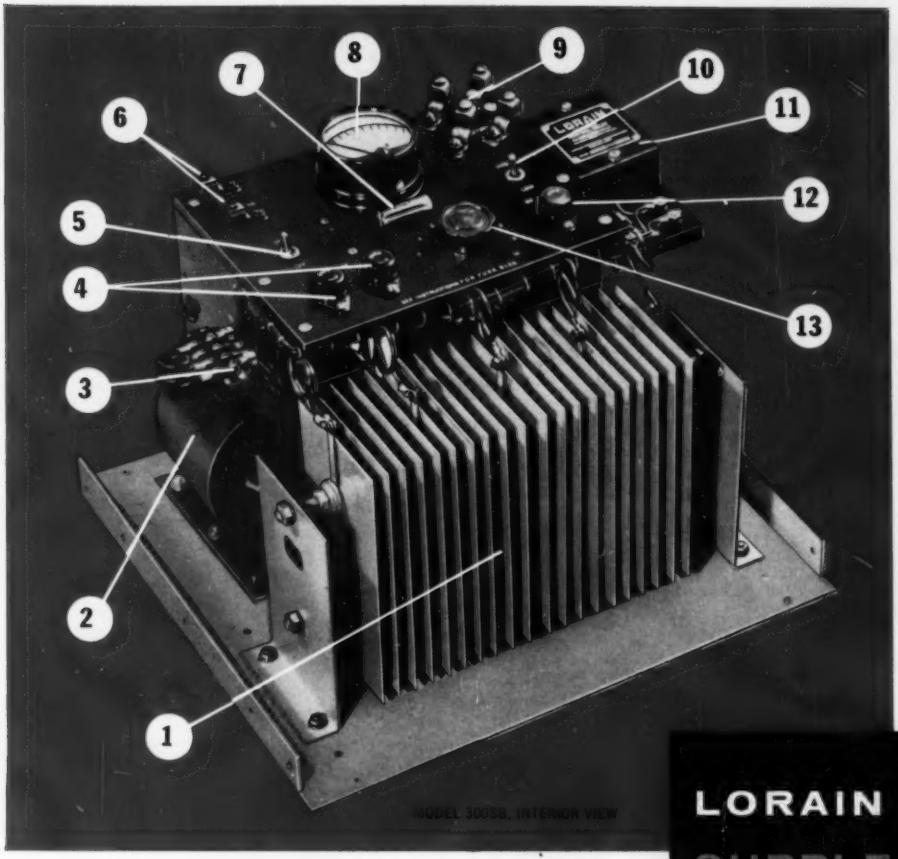
COURTS AND COMMISSIONS 39

HELPFUL LITERATURE 70

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.



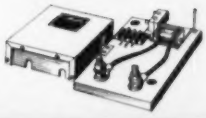
1. Selenium rectifier
2. Isolating transformer
3. Taps to adjust for A-C line voltage
4. A-C line fuses
5. On-off switch
6. A-C input terminals
7. Neon lamp to indicate tripping of overload relay
8. Output ammeter
9. D-C connections
10. Output range selector switch
11. Control relay, type FS1R
12. D-C load fuse
13. Tap switch

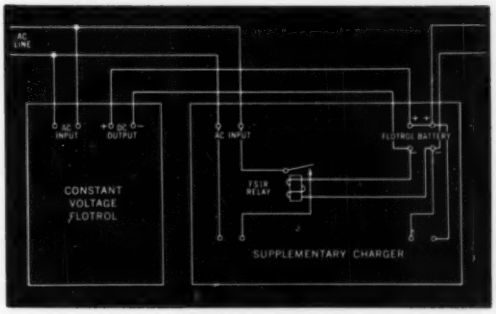
LORAIN FLOTROL SUPPLEMENTARY CHARGERS

For peak loads and growing plants . . . save money with "a Flotrol and a half"

Here is the low-cost answer to expanding loads that are taxing the capacity of your charger. A Lorain Supplementary Charger matched to your Flotrol as much as doubles its capacity at a fraction of the cost of a larger Flotrol. It is also used in new installations to get an "in-between-size" Flotrol and avoid paying for un-needed capacity. The Supplementary Unit delivers a constant current which is adjustable by a tap switch. Controlled by the master Flotrol, it provides a closely regulated output voltage. A control relay shuts the unit off when it is not needed. Proved in service since 1950. Thousands in use. Seven models, with output from 3 to 24 amps., 45-56 and 25 volts. Rack or wall mount. Write for Bulletin 171A.

FS1R Control Relay is mounted inside the unit and is wired as below. Externally mounted control relays (see right) are offered to simplify heavy wiring for the larger Flotrols.





POWER EQUIPMENT FOR COMMUNICATIONS AND INDUSTRY

our equipment is sold through leading telephone distributors

LORAIN *Products Corporation*

1122 F Street Lorain, Ohio Phone: ATlantic 8-9191

Whenever, Wherever you need

Complete, Dependable

Call Kellogg

Whatever it takes to operate a telephone company—*you can get it all from Kellogg*... a single, reliable source serving independent telephony for more than 60 years with equipment of unmatched dependability and advanced engineering.

Whether or not your immediate needs are shown on these pages, call Kellogg *first before you buy*—your centrally-located Kellogg warehouse has exactly what you're looking for.

KELLOGG
CHICAGO, ILLINOIS
IT&T

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of International Telephone and Telegraph Corporation

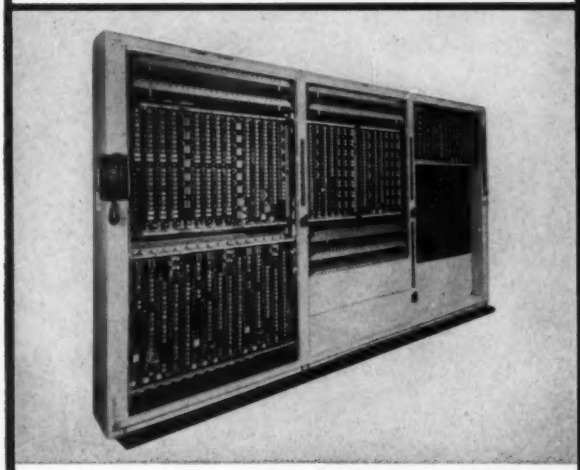
Regional Offices and Warehouses:

CALIFORNIA: 23 Broderick Road, Burlingame, Calif., OXford 7-5780.
GEORGIA: 1594 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
ILLINOIS: 4600 So. Tripp Ave., Chicago 32, Illinois, CLiffside 4-4300.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
NEW YORK: 327 North West Street, Syracuse, N. Y., HArrison 2-9251.
TEXAS: 1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.
EXPORT: 157 Prospect Street, Passaic, N. J., PRescott 3-5100.

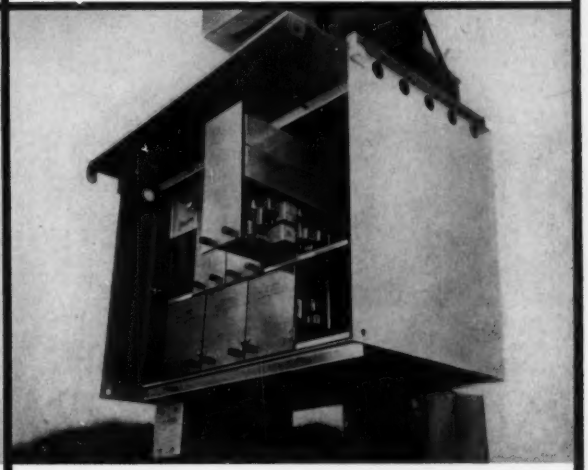
Equipment and Service

K-500 Telephones—The most advanced and reliable instruments available to independent telephony. Available in 9 sparkling decorator colors that your subscribers want (plus black) —in both desk and popular wall models.

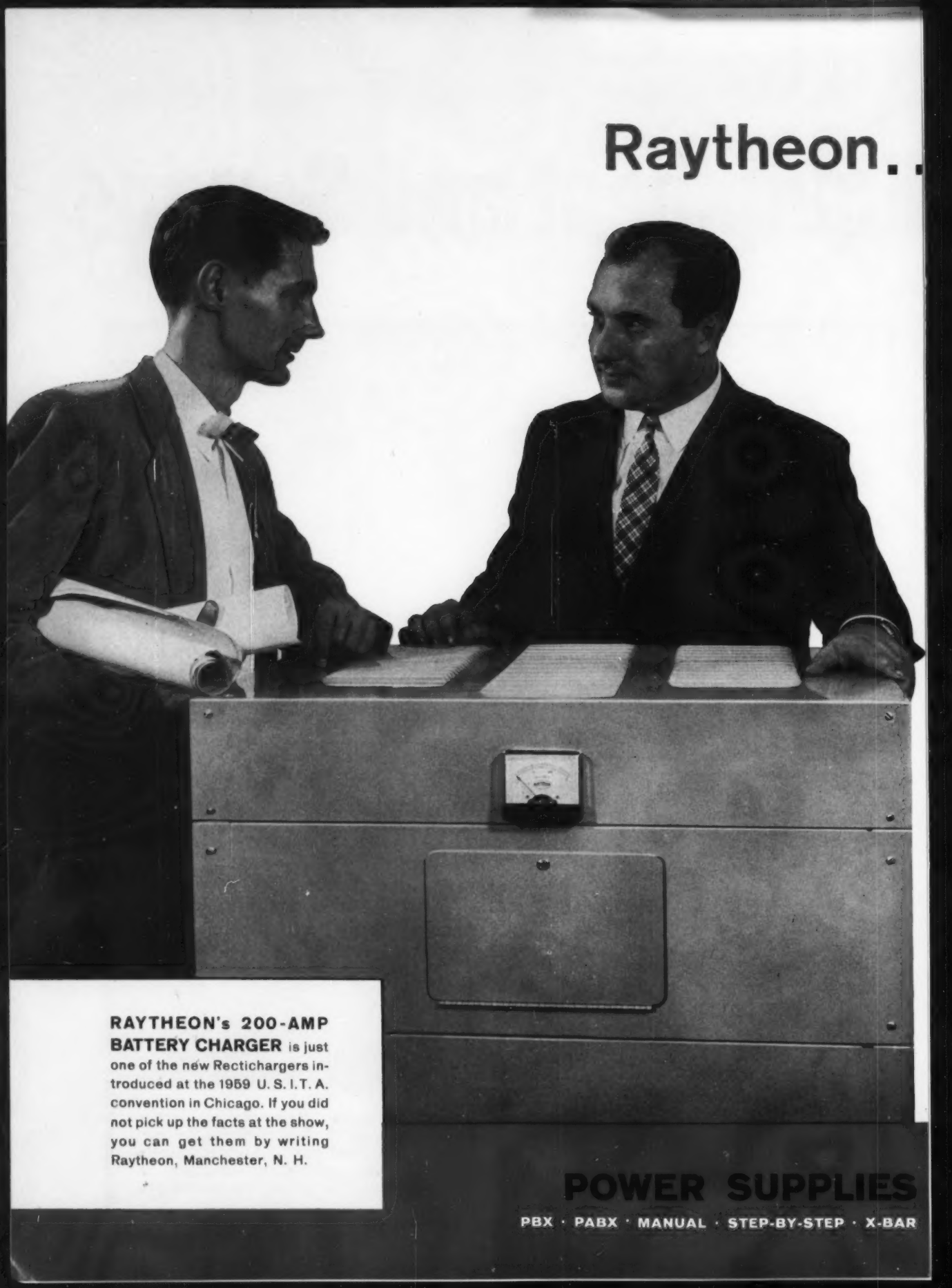
K1A1 Key Telephone System — Complete system access in one telephone: "Hold" buttons, added subscriber lines—any selection desired on the fast, easy-to-use buttons. "Executive exclusion" feature for confidential calls. Full color range.



Switching Systems—K-60 Crossbar—Tailored to fit any requirement. One unit handles from 10 to 10,000 lines... meets requirements of nation-wide toll dialing. Many exclusive features found in no other system.



Kellogg K-31 Carrier—New rural subscriber carrier system provides toll quality at low cost. Completely transistorized... up to 8 separate voice channels... printed circuits... plug-in construction. Easy to install, line up and test.



RAYTHEON's 200-AMP BATTERY CHARGER is just one of the new Rectichargers introduced at the 1959 U. S. I. T. A. convention in Chicago. If you did not pick up the facts at the show, you can get them by writing Raytheon, Manchester, N. H.

POWER SUPPLIES

PBX · PABX · MANUAL · STEP-BY-STEP · X-BAR

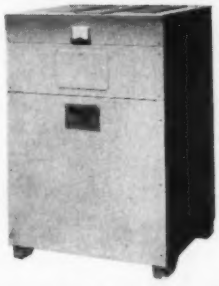
.....in the power field with new equipment

CHICAGO, 1959—Raytheon answers the power supply needs of a rapidly growing telephone industry by expanding its 50- and 130-volt battery charger lines.

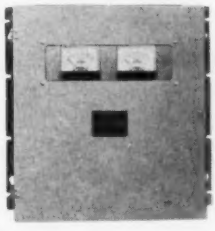
This new power equipment utilizes Raytheon-developed and thoroughly tested silicon-rectifier circuitry that offers greater reliability with less maintenance.

These new, highly efficient Rectichargers are up to 50% smaller than comparable selenium models—saving valuable floor and rack space.

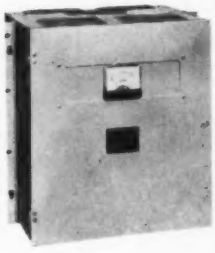
For literature on these new units or for help with any of your battery charger or battery eliminator requirements, simply write Raytheon Company, Manchester, New Hampshire.



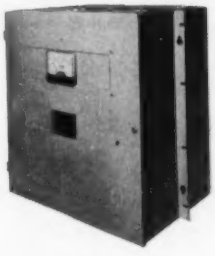
RC-50K200: 200-ampere, silicon battery charger is added to Raytheon's 50-volt Recticharger line. This unit is 46 inches high by 30 inches wide by 29 inches deep—less than half the size of its selenium counterpart.



RC-140A3: This new 3-ampere, 66-cell charger was designed for 130-140 volt power-board applications. Companion 6- and 12-ampere units, silicon CEMF cells and control panels give Raytheon a complete power panel line.



RC-50A9: This new 9-ampere rating provides reserve capacity for growing exchanges. RC-50A9 adapts to 19, 23 or 30-inch mounting and occupies only 15 inches of vertical rack space.



RC-50A18: Another intermediate charger rating to meet a recognized power requirement for large PBX's and medium-sized CDO's. This 18-ampere silicon charger is only 20 inches high.

RAYTHEON COMPANY
Industrial Apparatus Division

RAYTHEON *Excellence in Electronics*

FOR THE TELEPHONE INDUSTRY

AUTOMATIC TOLL-TICKETING · ELECTRONIC SWITCHING · CARRIER · MICROWAVE

TELEPHONE
TELEPHONE

Service from Graybar, too, is personal

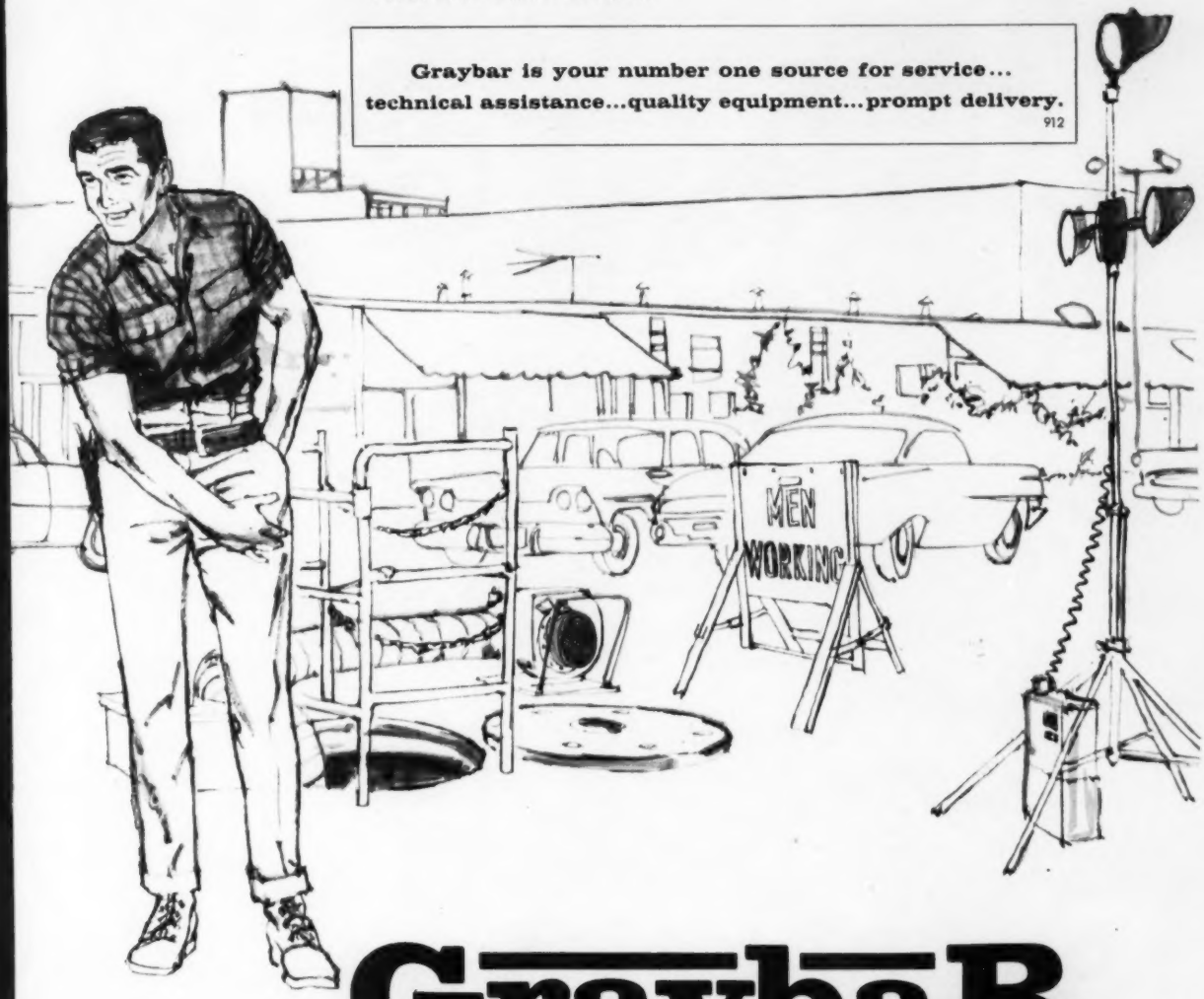
Many are the times when personal service is its own reward. With Graybar, as with the independent telephone companies, personal service is basic.

Every request you make of Graybar gets close personal attention . . . the kind of lively, consistent interest in your progress that comes most naturally from employees who own their own business. And Graybar *is* employee owned.

Whether you ask for very special delivery . . . explicit answers from the Graybar Telephone Specialist . . . or, at your convenience, an unhurried review of new products, such personal attention helps you get more done more efficiently.

Put us to the test . . . real soon.

Graybar is your number one source for service... technical assistance...quality equipment...prompt delivery.
912



GraybaR

ELECTRIC COMPANY, INC.

INDEPENDENT

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • OFFICES IN OVER 130 PRINCIPAL CITIES

Everything Electrical GraybaR

ESCO RINGING EQUIPMENT

MEMBER

DRIVE MOTORS

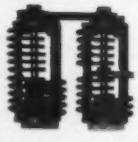
with *permanently* accurate speed regulation

In telephone ringing equipment, accurate speed regulation for the drive motors is one of the vital factors affecting equipment performance. But accurate regulation alone is not enough — it's regulation that stays accurate for the entire life of the equipment that counts.

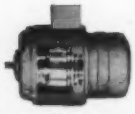
In ESCO ringing equipment, all drive motors for DC operation incorporate speed regulators of unusually rugged design. These long-lasting regulators were originally developed to meet the strict standards for naval and marine applications where high accuracy calls for corresponding ruggedness and dependability as well. Drive motors for AC are reluctance-synchronous types to assure reliable built-in regulation over the widest fluctuations in motor loading and voltage supply. ESCO motors are built to order in every type and rating for standard and special power sources. Each incorporates the extra refinements that are the result of ESCO's forty years of experience in designing and building special rotary electrical equipment.

Look into the full facts on ESCO drive motors and other ringing equipment components — see for yourself why so many equipment engineers and suppliers choose ESCO — *send for free booklet today.*

Lifetime drive motors



Compact, accessible interrupters



Combination alternators

"Ready-to-go" pre-wiring

Screw adjusted pile-ups

Permanently aligned drives

ADDITIONAL ESCO FEATURES (details in future ads in this series) explain why ESCO components are included in the installations of prominent suppliers like Automatic Electric Co., Federal Telephone and Radio Corp., Kellogg Switchboard Supply Co., Leich Sales Corp., Stromberg-Carlson Co.

ELECTRIC SPECIALTY CO.
176 South Street, Stamford, Connecticut

*Koiled Kords RETRACTILE CORDS

Give the Best Service

KOILED KORDS have proved over the years that they give the best service to subscribers and telephone companies alike.

KOILED KORDS have reduced cord maintenance and replacement to an absolute minimum.

KOILED KORDS keep their spring-like shape and last indefinitely under the toughest conditions.

KOILED KORDS are smooth, clean and cannot be harmed by moisture, grease, acid fumes or sunlight. Be sure your subscribers have the best . . . KOILED KORDS

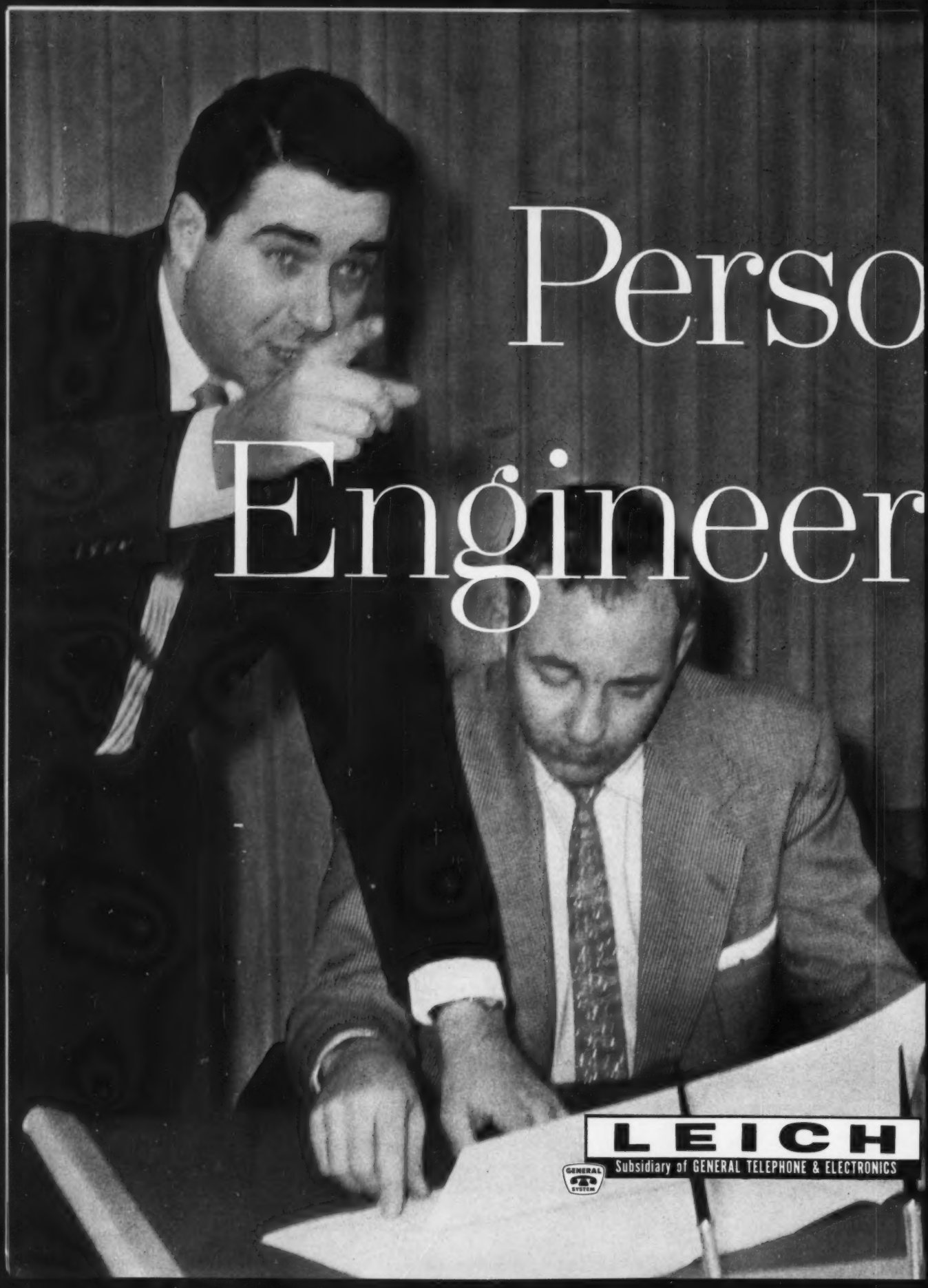
Available from your independent telephone supplier in black and many colors to complement colored telephones.

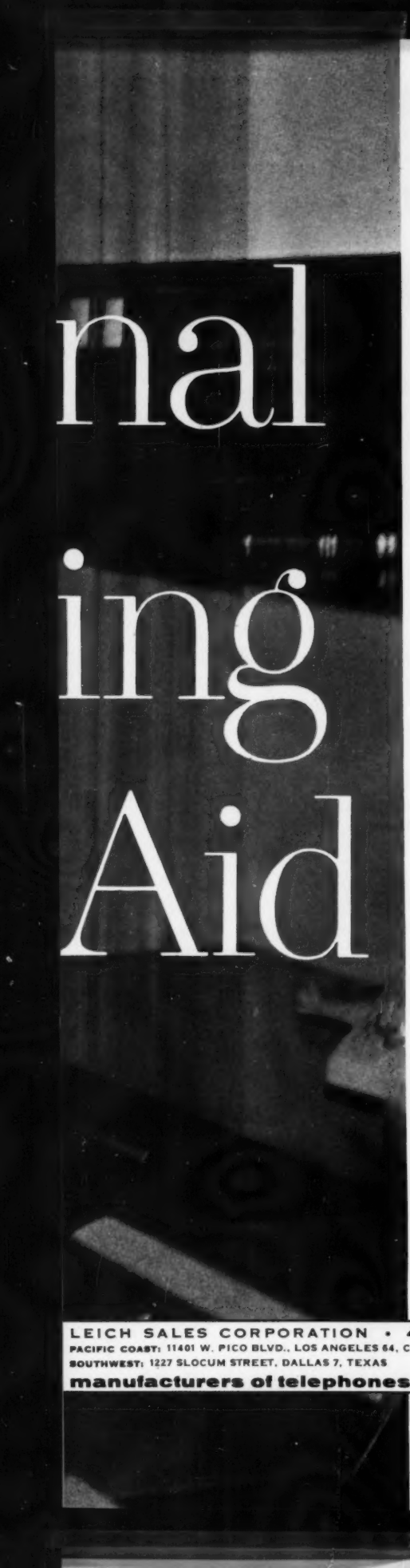
*Koiled Kords INC., BOX K, NEW HAVEN 14, CONN.

Telephone: CHestnut 8-5515
TWX — NH84

KOILED KORDS, THE ORIGINAL RETRACTILE CORDS, ARE THE RESULT OF 17 YEARS OF RESEARCH, DEVELOPMENT AND USE.

*KOILED KORDS IS A TRADE MARK OF KOILED KORDS, INC.


Perso
Engineer
LEICH
Subsidiary of GENERAL TELEPHONE & ELECTRONICS
GENERAL SYSTEM



MONEY-SAVING FEATURES OF THE LEICH DIAL SYSTEM

gives you the most profitable conversion possible

When you convert to dial switching equipment, it's up to you to decide, "How much can I pay?" "How can I maintain it?" "What about expansion?" To help you make these decisions, Leich offers you complete and personal engineering aid.

For example, you may be worried that your equipment will be obsoleted by station growth. A Leich sales engineer can show how easy and economical it is to expand the Leich Dial System. Lines and links can be added by merely jacking them in. If you expand beyond the capacity of initially installed bays, additional 100-line bays may be added. Each bay is a self-contained unit which includes selectors as well as line finders and connectors.

When you wish to become a part of nationwide Direct Distance Dialing, Leich intercept and line identification equipment make this important step an easy one.

A Leich sales engineer is at your service. There's no obligation. Write for details.

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS
PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS
SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA

manufacturers of telephones, switchboards and related apparatus since 1907

COLORED PAYSTATIONS

ATTRACT CUSTOMERS...

EARN MORE

That's why so many telephone men specify *color* when they order Automatic Electric "80" Series paystations. They know that colored paystations are a real eye-catcher, even in crowded locations. As a result, *more* people remember to call *more* often—and paystation revenue just naturally goes up.

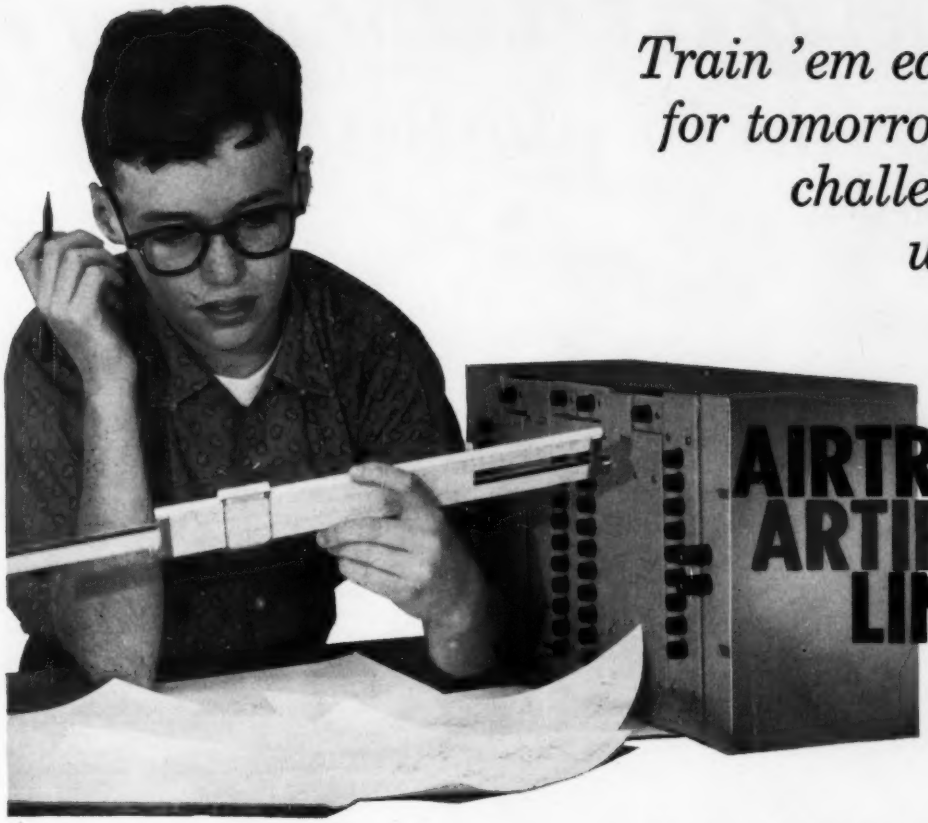
Colored paystations are popular with merchants. Reason? They help dress up store surroundings! And, there are 10 rich colors to blend or contrast with any background: Jade Green, Forget-me-not Blue, Camellia Pink, Gardenia White, Garnet Red, Turquoise, Sunlight Yellow, Dawn Gray, Classic Ivory and Sand Beige.

Automatic's "80" Series paystations also offer many other features, including:

- New, reinforced burglar-proof housing
- Lighter, easier-to-hold handset
- True-to-life transmission
- Easier, surer dialing; large figures
- Durable, moistureproof coiled cord
- Twin contacts on hookswitch and dial
- Extended number plate

Let us help you make paystations pay. Write for a free copy of our handy Survey Simplifier. It helps you find paying locations for paystations in your community.
Automatic Electric Sales Corporation, Northlake, Illinois. Or call Fillmore 5-7111.

AUTOMATIC ELECTRIC GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS



Train 'em early for tomorrow's challenge with

AIRTRONICS ARTIFICIAL LINE

Look for much that's new and exciting to happen in the communications systems field in the next five years . . . DDD for most of U.S. and Canada . . . CAMA for more and more large toll usage areas . . . line concentration . . . electronic switching . . . a rapidly expanding demand for private line services . . . and a great deal more advances requiring special design.

Despite satellites, the workhorse of systems communications will still be the same old cable pairs. But with alternate routing and VNL you'll regard them in a new light; and you'll take a more searching look at load coil spacings, net loss and return loss, while bias and sigma (old words with new meanings) will force you to correct trunks that don't meet minimum standards.

You can best meet this challenge by launching a comprehensive training program to begin now!

AIRTRONICS Artificial Lines can be a vital tool in your technical training program for plant and engineering people. In them are combined all the essential elements for use in demonstration lectures, in laboratory classes — or both.

GENERAL SPECIFICATIONS

AIRTRONICS standard Artificial Lines accurately simulate a loaded or non-loaded cable pair of any desired length — from 600 to 39,600 feet.* Push-button switching affords instant control over total length or load section lengths, so that coil spacings may be set to better than 1%, or as much as 10%. Common irregularities such as bridged taps, mixed loading or coils omitted can be introduced in a moment.

**Available with plug-in units for either #22 or #24 gauge cable, or mixed 22 and 24 gauge. Other commonly used gauges available on special order.*

For more detailed technical specifications, just ask us to rush you AIRTRONICS Artificial Line Brochure #1.021A. It will include equipment arrangements for a number of demonstration set-ups clearly showing the effect of equalizers, loading systems, reflections, singing points, and other characteristics.

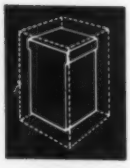
another product first for

AIRTRONICS INTERNATIONAL CORPORATION

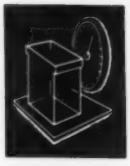
P.O. Box 8576, Fort Lauderdale, Florida (6900 West Road 84)

all new! **gould** *stationary batteries in plastrite jars!*

SAVES 30 TO 40% FLOOR SPACE. You can increase your battery room capacity without increasing the room size just by installing new Gould Batteries in Plastrite Jars.



EASIER TO HANDLE. You will find it easier and quicker to move batteries in your battery room; shipping and handling costs are lower because of the reduced weight of these new batteries.



NEW PLASTRITE JARS NEVER LOSE SHAPE . . . never bulge or warp because Plastrite has 15 to 30% higher resistance to heat distortion and 50% higher elongation characteristics than other stationary battery jars.

HIGHER IMPACT RESISTANCE, TOO. Normal handling shocks and shipping abuse will not harm the new Plastrite Jar which has a higher tensile strength.

Defies electrolyte seepage. New Silicone O-ring post seal expands under compression, forming a tight seal against the cover wall of the battery. This prevents escape of electrolyte, eliminates discoloration of battery cover.

New stronger posts assure full current-carrying capacity, permit convenient assembling of cells end-to-end or side-to-side.

New element suspension eliminates cover breakage due to weight of battery element.

Take advantage of the benefits offered by Gould's new Stationary Batteries in Plastrite Jars. They're available in Planté, Calcium, and Kathanode types . . . in capacities for every need. Write today for new illustrated catalogs, or call your local Gould office listed under "Batteries—Industrial" in the "Yellow Pages." Gould-National Batteries, Inc., Trenton 7, N. J.

More Power to you from **gould**

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Bell System and railroad representatives testify in FCC hearing on new tariffs filed by Bell companies for connections of railroad-operated systems with telephone company facilities. FTC chairman upholds commission regulation.

DURING the past week the Federal Communications Commission has been having hearings on the new tariffs filed by the Bell companies for connection of railroad-operated communications systems with telephone company facilities. The hearings will probably run for the rest of this month before recess. Meanwhile the new tariffs are in effect, but they are subject to the FCC's determination in the pending proceedings. The USITA and General Telephone Service Corp. have intervened in support of the Bell System position.

Most of the Bell witnesses, which included American Telephone & Telegraph Co. Vice President George L. Best, J. K. Looloian, private line rate engineer, and Walter K. MacAdam, assistant chief engineer, talked about the hazards of unlimited interconnection with respect to the service to the public. There was also comment on the impact on the rate structure if some customers are allowed to run their own systems over local or shorter inexpensive routes, leaving the telephone companies to take care of the rest of the load.

These proceedings follow negotiations with the railroad companies covering wire circuits to be extended to include microwave radio connections for interconnection with telephone local exchange and long distance service. Telephone companies, including both Bell and Independents, in the new tariffs liberalize interconnection agreements so as to permit the railroads a number of valuable privileges. Most important of these would be the somewhat controversial interconnection of railroad microwave circuits with telephone company PBX and exchange and toll services—not only in emergencies but for the interconnection of railroad circuits with telephone company private line service and channels. These tariffs, in the words of AT&T Vice President Best, "have gone as far as the facts possibly justify."

Still unresolved was the difference of opinion over unrestricted interconnection of all types of facilities which the telephone companies do not feel disposed to permit at this time, although several railroads are contesting the point. The new tariffs provide that interconnection beyond PBX's be limited to existing wire circuits on grounds that the unrestricted interconnection privileges demanded by the railroads would amount to a patent preference over other customers.

The telephone companies, generally, always have believed that, in order to furnish the best possible service to the public, customer-provided systems should not be connected to telephone company local exchange and long distance facilities. To meet their responsibility to the public and the regulatory authorities, they take the position that they must select and provide facilities and have full control over their design, installation, operation, and maintenance. The telephone system is made up of a large number of complicated and delicately balanced parts which must work as an integrated assembly. To permit the connection into this complex network, of equipment designed without regard to co-ordinated operation and maintenance, would seriously degrade the service.

Telephone companies have been providing an ever-improving service—faster, more convenient and dependable and at low cost. This has been made possible through steady development, planning, and co-ordination of parts, plus a high degree of standardization of tools, instructions, methods, and equipment. Such co-ordination and standardization might well be disrupted by the connection of networks of customer-provided facilities.

It is not generally understood that customers providing their own facilities are not primarily in the communications business—it is a side line with them and they have no direct responsibility for service to other telephone subscribers or the public generally. The Bell companies are convinced that the sweeping exception to the general tariff regulations demanded by the railroads and the major preference over all other customers which would result is without justification. In fact, they feel that the exception, if extended to customers generally, could destroy the foundation of good telephone service and place an added burden of cost on regular customers.

In the infant days of telephony, when railroads already had telegraph systems along their rights-of-way, telephone companies permitted the connection of the communication systems of

railroads with the telephone companies' exchange and toll facilities. Then when telephones and switchboards became available, the railroads established their own telephone systems, using their existing pole lines because, to a large extent, the railroad rights-of-way were in locations where it was then impracticable for telephone companies to provide service. These railroad wire systems were permitted to interconnect with telephone company exchange and toll systems under contracts first entered into in the 1890's and subsequently revised a number of times.

Over the years, however, there have been changes in the art of telephony, and both railroads and telephone companies became dissatisfied with provisions of the existing agreements. It was for this reason that the railroads requested that the agreement covering wire circuits be extended to include microwave radio connections and other innovations. Whether the compromise arrangement proposed in the new tariffs will be approved, if not accepted willingly by the railroads, is what the FCC will have to decide. If it decides that further changes are in order, the tariffs may have to be revised. Telephone companies think they are OK as is.

What do the railroads say to these claims of the telephone companies? D. William Brosnan, operations vice president of Southern Railway System, insists that American Telephone & Telegraph Co. and its system operating companies are trying to force railroads to replace their own telephone systems with AT&T facilities. Brosnan told FCC Examiner Kyle on Nov. 4 that the new tariffs set for linking private railroad communications lines with Bell System lines would work hardships on the rails.

Brosnan stated that the AT&T proposal is "designed to make our private system completely unworkable and in the end force us to come around to leasing all of our communications from telephone companies."

Save the Commissions

One of the difficulties inherent in current efforts of the House Legislative Oversight Sub-committee to clean up defects in regulatory procedure is the damage that can be done to commission regulation as a whole. Comments have previously been made about that in this department. But now the chairman of an important federal commission has spoken on the subject. He is Earl W. Kintner, head of the Federal Trade Commission (FTC). Kintner is afraid that regulatory reformers would create more problems than they could solve by using a meat-ax approach on present commission organization.

The typical federal regulatory commission differs (aside from interstate *versus* intrastate jurisdiction) from the typical state commission only in the number of commissioners. The average federal commission has five members. (The Federal Communications Commission has seven and the Interstate Commerce Commission has 11.) The average state regulatory commission has only three members, except in the larger states (New York, Illinois, California, Pennsylvania, and Massa-

(Continued on page 67)

REA OK's 3 Telephone Loans

Three telephone loans were approved during the week of Oct. 26 by the Rural Electrification Administration as follows:

Western States Telephone Co., Holbrook, Ariz.; $845,000; Oct. 30. This loan will help to finance initial service for 332 subscribers and improved service for 15 subscribers. The borrower plans to construct new dial central offices at Alpine and Heber. About 157 of the new subscribers will be located in the two new exchanges and the remainder in other Arizona exchanges.

The Western States company also proposes to furnish additional toll facilities, provide for an increase in the proportion of private and semi-private lines, expand the present headquarters building in Holbrook, and complete construction of the authorized system.

REA loans to this borrower now total $3,777,000 and will aid in making possible new and improved service to 6,295 subscribers in Arizona, New Mexico, and Texas. Six exchanges in Arizona have recently been cut over to dial operation. The completed system will consist of eight exchanges in Arizona and two each in New Mexico and Texas.

Carl H. Jennings is president and H. J. Jennings is manager of the Western States company.

•

The Eureka Telephone Co., Corydon, Ind.; $210,000; Oct. 30. These funds will help furnish initial service to 208 subscribers and improved service for 262 subscribers. The subscribers who will receive improved service are now served through the magneto facilities of the Leavenworth Telephone Co. which the borrower proposes to acquire.

The borrower's construction plans include a new dial central office at Leavenworth.

The Eureka company has now received REA loans totaling $2,080,000 which will enable it to furnish new and improved service to 5,019 subscribers. Eight of the proposed nine exchanges are now furnishing dial service to approximately 3,860 subscribers.

Dr. William E. Amy is president and W. A. Parker is manager of the Eureka company.

•

Mid-Rivers Telephone Cooperative, Circle, Mont.; $661,000; Oct. 30. These funds will aid in enabling the borrower to improve service for 125 existing subscribers and to furnish initial service to 490 subscribers.

The borrower plans to acquire; with loan funds, the Grass Range Telephone Co. and the Burt Sisters Telephone Co., Winnett.

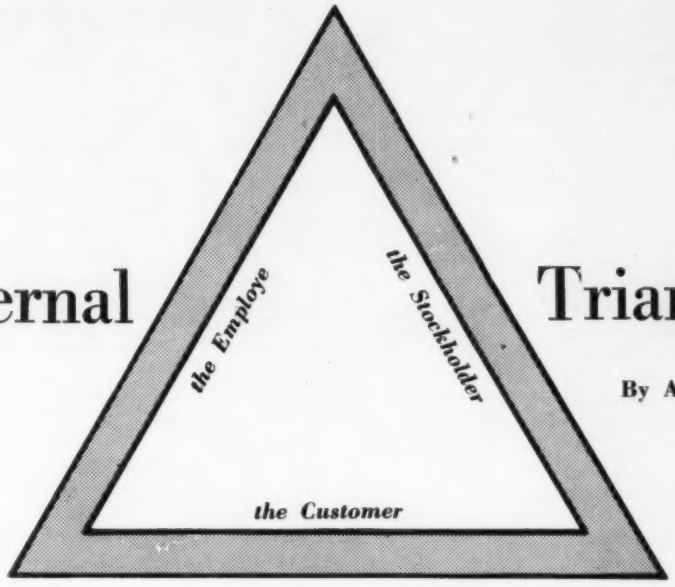
In addition, the cooperative will receive, through abandonment of facilities, the telephone properties of the Ismay Telephone Co. These companies now provide magneto service to the existing subscribers.

The borrower's rehabilitation and expansion plans include new dial central offices at Grass Range and Winnett. A portion of the loan will be used to complete the authorized system, and to install mobile radio equipment for maintenance purposes.

Loans to this borrower now amount to $3,040,000 which will help provide new and improved service for 3,181 subscribers. The completed system will consist of 16 exchanges. Thirteen are now furnishing dial service to approximately 1,910 subscribers.

Everett Hill is president and B. R. Allen is manager of the Mid-Rivers cooperative.

the Eternal Triangle



By A. J. BARRAN*

I FEEL extremely flattered that you invited me to speak before you in convention assembled. I have some very fond memories of Alaska. Although this visit is the first time I have placed my feet upon the soil of the 49th state, I observed this wonderful land through the glass of a well-focused and polished pair of U. S. Navy binoculars way back in 1943. And I can tell you I would have been much more comfortable and perhaps a little happier planted on Alaskan soil than standing on the bridge of a World War II destroyer on my way to some place called Kamchatka. Moreover, Alaska did appear to be beautiful and bountiful then, and now you have given me the opportunity to confirm what I saw in that long-range look some 16 years ago.

When President Zinns (of the Alaska Telephone Association) asked me for the title of my talk, I snapped one off the end of my tongue without the least hesitation. Then I had to make a confession to your good president that I always give the same speech—the only thing I change is the title. As I recall, I'm working on my 31st title at the moment.

Seriously though, the *Eternal Triangle* to which I refer in my title is not the one these articulate authors write about in lurid, paper-backed books. It is not the melodramatic writings of a radio or TV scriptwriter—you know—the "John's Other Wife" story and the like. My Eternal Triangle concerns a very serious side of the telephone business. It concerns the answer, in an objective and honest manner, to the question, "Why are we in the telephone business?" Seems rather basic, doesn't it, to pause once in a while and find out what the object of the exercise is. Are we in business to further our own financial interests? Are we in business to provide good jobs for other people? Are we in business to give good telephone service? Are we in business to make a profit?

The answers to all of these questions is obviously "yes." I don't think anyone in this room, or anyone in your organization, would find disagreement with this conclusion. Yet sometimes in our endeavor to fulfill each of these objectives there is a tendency to concentrate too much on one or two, which creates an unbalanced situation.

And, now, I shall get my talk into orbit by referring once again back to the Eternal Triangle and its meaning in our business. As I see it, the telephone business is very much like an equilateral triangle (all sides equal). The sides, equal in length and strength, are represented by (1) the employe, (2) the customer, and (3) the shareowner or stockholder.

If we agree that a successful telephone company must maintain this equilateral position at all times, then it follows that equal emphasis or concentration must be placed on each of the three sides of my triangle. It becomes necessary under this concept to evolve a policy for management. I should like to suggest this one for your consideration: *"It is management's responsibility to carry out whatever course of action is necessary to fulfill its total obligations to employes, customers and shareowners."*

At this point, I think we should take the Eternal Triangle, break it into three parts, and analyze each side as seen from the viewpoint of the three publics—the employe, the customer and the shareowner. These are, as I have observed them in my personal experience of dealing with the three, first as an employe (non-management, middle management and top management positions), second as a customer and serving customers, and third as a shareowner (with a personal portfolio) and the responsibility to company shareowners.

For a few minutes, then, let us discuss what the employes of our companies want out of their jobs. First of all, I strongly believe that the most potent motivator in management-employe relationships is a very simple thing—recognition. Each of us wants to be recognized. I think we often minimize the power of recognition!

At my home in Spokane, Mrs. Bar-

*Mr. Barran is President of General Telephone Co. of the Northwest. He presented this address at the recent convention of the Alaska Telephone Association.

ran and I are blessed with four lovely daughters. They range in age from 2½ years to 16 years—in other words, we have all the problems of babies to teenagers concurrently. My 2½-year old is a little, curly-haired bundle of sweetness until she climbs into the highchair at meal time. Then she becomes a highchair bolshevik! Have you ever had a glass of milk thrown in your lap? Have you ever been the target for a gob of mashed potatoes? I have. And why does this little angel do these things? I figured it out recently. She's not mean. She just wants recognition. All during the meal she sits off to the side while the "big family" is at the table. So she wants to compensate for this lack of recognition. The other night we moved her to the table in a junior chair. It worked. She now has the recognition she wanted. And we have no more troubles at the dinner hour—well, for the moment anyway!

Since the beginning of time, man has sought acclaim in the eyes of his fellow men. He has thirsted for recognition. Management must recognize its employes. A good job—a job well done—must be recognized. As an employe "pushes to the front," his efforts must be commended by the front office. Lack of recognition for a job well done is as demoralizing as the absence of applause for an actor after a stellar performance. We all live for applause.

Convention Calendar

1959

Association	Date	City	Hotel
Florida	Nov. 30 and Dec. 1	Jacksonville	Robert Meyer

1960

Minnesota	Feb. 7, 8, 9 and 10	St. Paul	St. Paul
Mississippi	Feb. 15 and 16	Unannounced	Unannounced
Louisiana	Feb. 24 and 25	New Orleans	Jung
Kentucky	Mar. 1	Lexington	Phoenix
Texas	Mar. 7 and 8	Dallas	Baker
Ohio	Mar. 28, 29, and 30.	Columbus	Deshler Hilton
Iowa	Apr. 5 and 6	Des Moines	Ft. Des Moines
Nebraska	Apr. 19 and 20	Omaha	Sheraton-Fontenelle
Indiana	May 4 and 5	Indianapolis	Claypool
Wisconsin	May 10 and 11	Milwaukee	Plankinton House
Illinois	May 19 and 20	Springfield	Abraham Lincoln
Kansas-Missouri*	May 23 and 24	Kansas City	Town House
Pennsylvania	June 6 and 7	Bedford Springs	Bedford Springs
California	June 8, 9 and 10	San Francisco	Fairmont
Washington-Oregon*	June 16 and 17	Portland	Sheraton Portland
New York	June 20, 21 and 22	Schroon Lake	Scaroon Manor
Michigan	Sept. 12 and 13	Mackinac Island	Grand
USITA	Oct. 9, 10, 11 & 12	Chicago	Conrad Hilton

*Joint Convention

Build on Failures

Management must be mindful at all times of the things which motivate its people down the line to do a better job—to move mountains. *Progress is not measured alone by success. Great men have found no royal road to their triumphs. It is always by the old route of overcoming obstacles—yes, even failures.* We should always remember that the experience of failure, if employed to build a better next job, is more valuable than the success which sometimes leads to stagnation.

People desire objective criticism. Criticism given constructively is recognition.

Merit must be recognized. Any company on the move, in tune with progress, is always looking for good people. It is in management's best interest to advance a person just as soon as it is profitable to do so.

How about money? Is it really the motivator some think it is? Some management people believe that the pay check is *the* prime motivator. I don't think so. A man or woman who gets no more from his job than the wages his employer pays him is cheated—he cheats himself. A person who does this is depriving himself of a full life. Working at a telephone job, irrespective of the kind of work and the level in the organization, is practical training for increasing skills, expanding experience, stretching the mind, and strengthening and building confidence and intellect. *A job, therefore, is not merely a machine to grind out dollars and cents.* Good management will always give a great deal more than is found in the pay envelope. Good management is inspirational. It inspires people to do something higher. It inspires them to do a good job better.

Pride in Company

I think it is safe to say that every employe wants to be proud of the company he works for. Certainly it makes life much more pleasant when customers hold a company in high esteem and are friendly toward its representatives. An objective, thinking employe, who is honest with himself, usually won't work very long for a company which does not have unwavering integrity. He won't work very long for a company which does not have the steadfastness to stand firmly behind its policies and decisions. On the other hand, flexibility is a virtue. A progressive employe is attracted to a company that will change as conditions change and make use of new improved methods, tools and ideas.

A happy employe is one who likes to feel that his company is giving him just a little more than the book says. A company which operates strictly within the framework of precise procedures and practices, and that is all, does not gain the loyalty of its people like the one which gives a little more than the rule book calls for.

I have often heard that the reason people work for telephone companies is because they feel secure in their jobs. Yes, an employe wants to know that his job is protected against the undisciplined actions of management; however, on the other hand, he doesn't want his opportunity for advancement retarded because someone who can't do the job is secure. He wants to know that his own efforts provide all the security he needs.

Working conditions are important too. An employe wants a pleasant atmosphere during working hours. He wants work which is stimulating and challenging. When he leaves his job at the end of the day, he wants to look forward to tomorrow as another day of opportunity and of agreeable asso-

ciations with his fellow employes and the company's customers.

Now let's turn to the customer and determine where he fits into our triangle. I suppose if you want to cut quickly through all the red tape and conversation to find out what our customers want from us it can be expressed quite tersely—SERVICE. A customer of any organization—a hospital, a garage, an airline, a hotel—wants one thing above everything else—good service. Service is the solid foundation upon which any organization is built—utility company or not.

Service Is Keynote

Recently, I was at the air terminal in Portland, Ore., on my way to Los Angeles. At boarding time much to my disappointment a sign went up on the departure board announcing a two-hour delay. Frankly, I have never heard such moaning and grousing as the irritated passengers of that plane did until something very important happened. One of the employes of this airline asked the group to step over to a corner of the airport for a message. In a very efficient and friendly way he explained that the aircraft which we were to board had not passed the safety inspection by the flight crew. He explained that it was the policy of the airline to think of the passengers first. He then asked us for our understanding and cooperation. It was amazing to see how the ire of this group melted. I heard one passenger remark: "Well, I've got to be in Los Angeles tonight, but I'd rather get there late than not at all." An entirely different attitude than a few minutes before. Why? Because an employe of this airline took it upon himself to think about the customer—to put himself in the customer's shoes.

A manufacturer may make a perfect product, but if he doesn't know how to deliver the goods to his customers he will soon be out of business. Attention to service is more important than product quality. Inferiority of either service or product is poor business, but I think a customer will go along with a slightly inferior product if it is sold and serviced in a superior way. On the other hand, a top-quality product serviced in an inadequate way will not be tolerated by the average customer.

A customer of a telephone company, when he walks into the business office or calls on the telephone to place an order, is asking for one thing—service. In his own mind he is not asking for a telephone instrument, inside wire, cable, central office equipment, etc.—he wants telephone service. A few

A. J. BARRAN

years ago when I was public relations director I answered a customer's letter asking for the reasons why he could not get immediate telephone service with the statement, "There are no facilities available." In the next mail (at least it seemed that quick) the customer answered, "But, sir, I didn't order facilities. I only asked for a telephone!"

A customer could not care less about the complexities of our equipment, the cost and how the job is to be done. He wants only the end result—telephone service. I remember a friend of mine who told me about his boss's reaction to a long list of reasons and excuses why a particular assignment was not done. The boss said, "Well, Fred, I'm not the least bit interested in the labor pains, just show me the baby."

A customer seeks fair treatment in all business transactions with the company. He insists upon honest and straightforward statements. When a company representative makes a commitment the customer considers this to be an iron-clad contract. When a commitment is not met he believes that this contract has been breached. Companies which gain the reputation of failing to live up to their word soon lose public esteem and confidence.

What is telephone service worth to a customer? I suppose every telephone executive would like to have a precise answer to this. I think an answer which comes very close is that a customer is willing to pay just as much as the service is worth, and no more. It is an insult to a customer's intelligence to ask him to pay something in addition to the value of what he is buying. The better the service the greater the value, and the more people are willing to pay.

During the past few years most companies have had to reprice their services many times to keep up with inflation and the heavy investments which are being made to improve and expand telephone service. In every instance, a request for increased rates is tried twice—first before some government regulatory authority, and second before the bar of public opinion. I believe we can do a better job in the first area; I know we fail miserably in the second—convincing our customers of the need for adequate earnings.

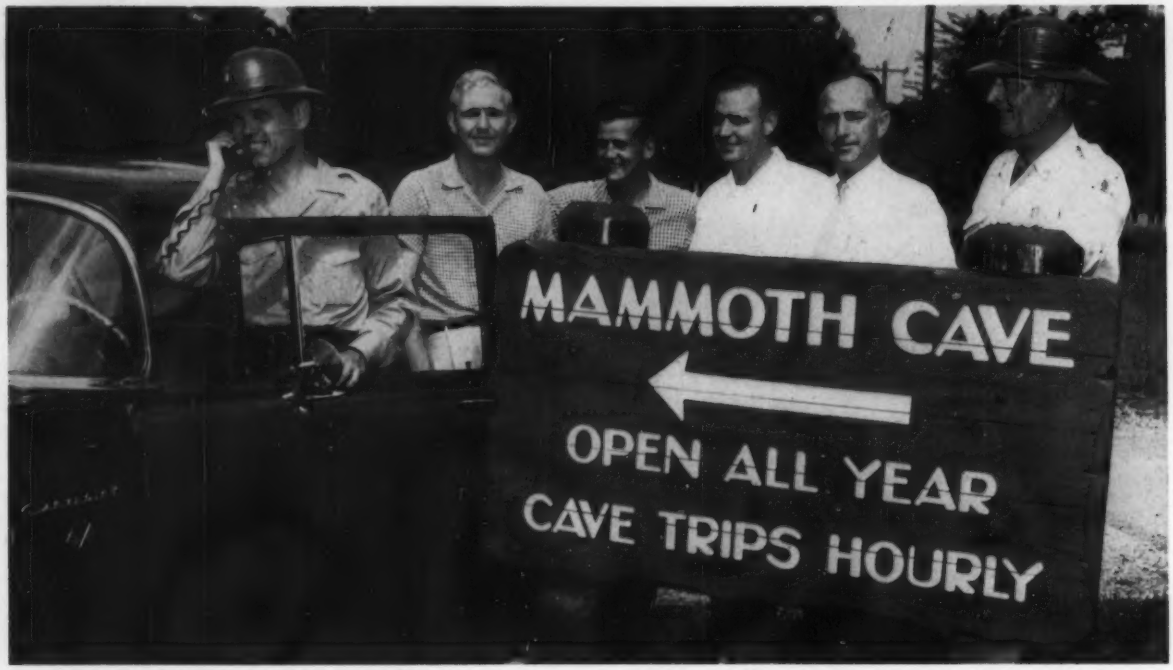
Need for Adequate Earnings

When I went to the Northwest (that is, Spokane, Wash.) in May 1958, the prime interest rate which we paid to borrow money from local banks for interim financing was 3½ per cent. A month ago I received a call from the vice president of the bank with which we do business and he informed me that the rate was now 5 per cent. A full percentage point and a half in 16 months. And, as yet, I haven't heard a bank customer complain. However, when we try to raise telephone rates, say 25 cents or 50 cents a month, the roof collapses on us. Why? Because we do not do a good job of keeping our customers informed of what is happening to our business. Public relations, publicity, customer education, call it what you want—in this area we are not coming close to doing an adequate job.

Our customers have a number of misconceptions about us. I have found in talking with customer groups that they sometimes look on us as rolling in money, with a guaranteed return on our investment and insured against the pressures of inflation, attrition and competition which affect the earnings of all other businesses.

For some reason there are customers who believe that telephone companies should not make a profit. And profit is a word which is used too seldom in our business. We talk about "rate of return" and "net income" and a lot of other accounting entries that do not mean a thing to our customers. Profit is a good, clean American word. It is understandable. My 11-year-old daughter knows what it is. She had a lemonade stand out in front of our house for a couple of days last summer. Business was evidently brisk because she would run in the house every so often and deposit a couple of pennies and a nickel in her bank. The third day Mrs. Barran said, "All right, Missy, you can set up the stand, but I want 50 cents for the lemonade mix." Missy thought for a moment,—said

(Continued on page 46)



First official call on mobile dial system at Mammoth Cave National Park was made by Thomas Norris (left) chief ranger; others are, left to right: Dennis Armstrong, area manager, Mammoth Cave Telephone Co.; Don Anderson, service representative, Motorola; Paul Lackey, head engineer, and W. W. Thomason, general manager, Mammoth Cave Telephone Co.; and Perry E. Brown, superintendent, Mammoth Cave National Park.

Mammoth Cave Gets New System

ONE OF THE untouched wonders of nature—Mammoth Cave—has given in to the age of electronics.

On Aug. 31 the Mammoth Cave Telephone Co. converted to dial and mobile telephone service throughout the Mammoth Cave National Park of Kentucky, and initiated dial service deep in the heart of the cave.

For the past several months the company, through its area manager, Dennis Armstrong, had hurried to complete its dial and mobile system in order to aid vacationers at the park, and to offer service when the dreaded fire season begins.

A new exchange building on the park grounds will house the new Stromberg-Carlson equipment. All lines and poles are new and some of the plant is buried.

The central office is 100-line terminal per station. It is equipped with five long distance trunks. There are 18 mobile units served by a 142-foot tower. Ten are in Park Ranger trucks. Eight will be at fixed locations. Of the eight, seven are at the fire towers and one at Houchin's Ferry that crosses Green River. The mobile units are for policing the area for fire, accidents or other emergency purposes.

A community fire reporting system is in operation. One number is connected to six telephones which ring simultaneously in case of fire.

Eleven paystations for the public are distributed over the area. One will be in the cave's Snowball Dining Room, 267 feet below the surface.

Twelve damp-proof dial telephones for use by tour guides are located at strategic points inside the cave. One of these is in Grand Central Station, 250 feet beneath the park. This system will be used for emergency purposes only, with telephones located about every 2 miles. About 20 residences of park officials will also have the new dial service.

A PBX will be installed in the park's new million dollar administration and visitors center as soon as the building's construction is completed.

In fact, the entire National Park is taking on a "New Look."

New buildings, new roads, parking areas, a hotel and cabins, and additional camping facilities are underway. Thousands of visitors, increasing each year, have made the additions necessary. Yet, as they now exist, park facilities, as well as telephony have "come a long way."

Telephone service came to Mammoth Cave Park in 1900. The only history of telephony in this much visited area is in the memories of R. A. Demunbrun, well-known columnist and historian for the weekly *Edmonson County News*, Brownsville, Ky. He states it this way:

"Many people in Edmonson County were astonished in 1900 when Uncle

Pace Sanders, one of the most unique individualists ever produced here, built the first telephone line ever in the county, and made it possible for the 'Little Man' in the old-fashioned telephone box to talk.

"It seems quite strange to us of the modern era that our own ancestors believed that the telephone voice came from a 'Little Man' in the box on the wall, but that is exactly what many people believed, at least hereabouts.

"The first telephone line was run from the Brownsville Deposit Bank to Rhoda and thence to Smiths Grove. It was a single line, with the use of a ground wire, and as the system grew and developed, it remained practically the same kind of system until the early twenties, when much of the system was converted into a two-line system.

"Soon after the turn of the century, Al James constructed, in the Arthur and Silent Grove communities a second system, which was separate from the original system established by Sanders, and which was known as the Home System, later to be consolidated with the Brownsville system.

"The Sanders system spread throughout most of Edmonson County, particularly after it was purchased by the late Charlie Tarter. Tarter sold the system to W. H. Vincent, who retained it only a few years before selling it back to Tarter.

"Tarter then further expanded the system, with exchange offices at Brownsville at Elko, near where the Joppa Church now stands in the Mammoth Cave National Park. Aunt Polly Page, a beloved lady, operated the Elko switchboard for years before that particular section of the Edmonson system was purchased in about 1918 by the late A. A. Demunbrun, a resident and large land-owner in what is now the National Park area.

"In 1920, Demunbrun purchased the rest of the Edmonson County telephone system, including the Home system at Arthur, and moved the Elko exchange office from Elko to Mammoth Cave, which office he continued to operate until a few years after the establishment of the Mammoth Cave National Park. At that time, all private business was compelled to leave the Park area, and Demunbrun concentrated his whole system at Brownsville.

"Demunbrun continued to own and operate this Edmonson system until his death in 1948, after which it was sold to Cecil Elmore, Cedar Springs, who soon sold shares of stock in a new system, which he constructed with the aid of federal funds, with exchange offices at Brownsville, Huff, and Park City. In the new system many of the telephones were changed from the manual operation to a three-digit dial operation.

"Elmore operated the new system until it was purchased recently by the Mammoth Cave Telephone Company, Park City, Ky.

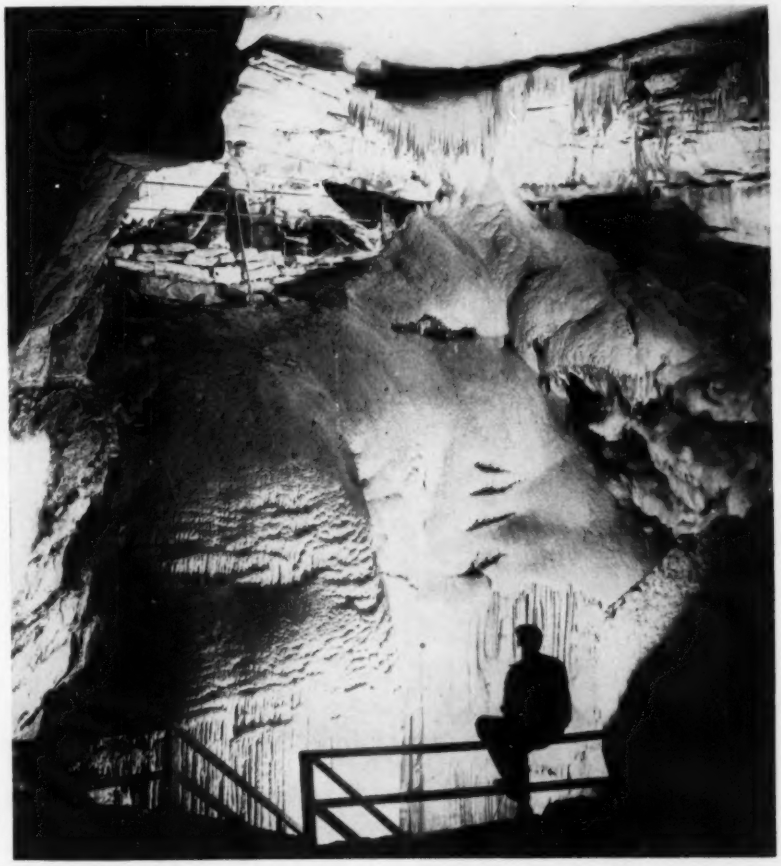
"The telephone rates charged by the Edmonson County system were 50 cents a month if the customer owned his own telephone box, and 75 cents a month if the operator of the system owned the box. These rates remained in effect until Elmore purchased the system from Demunbrun. The rates on the Home telephone system at Arthur, before it was consolidated with the Brownsville system, were only $1.00 per year. Telephone users would often furnish and run their own lines in the Home system.

"At last the 'Little Man' in the box has been turned out, and with a twist of the dial, any man in the world can be contacted if he is within reach of a telephone.

"Again, with the aid of the federal funds, Mammoth Cave National Park and adjoining areas now have the most modern telephone service available.

"As one old-time resident of the park area declared on picking up his telephone and dialing a neighbor: 'That you, Bob? Golly, times sure do change.'"

New exchange building on grounds of Mammoth Cave National Park.



Frozen Niagara, 75 feet high, located in Mammoth Cave. A telephone will be installed near this point.

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE HAVE A REPORT from California that a man there makes use of a length of iron wire instead of a piece of willow as a divining rod to "witch" for water.

It is reported that he simply walks around holding the length of wire in his hand. When it starts to vibrate, then wiggle, and turn in circles, he knows that he has located water.

It would appear that he may have adopted the cable locating idea that is claimed by some to be equally successful.

•

In the Newark, N. J. airport recently, having finished our business several hours prior to the departure of the flight on which we had a reservation for Washington, D. C., we asked Eastern Air Lines if we could obtain space on an earlier flight. We were told that Capital was then loading at Gate 3 and we could probably get on it if we hurried. We did and Capital accepted the Eastern tickets without question.

We have often marvelled at the cooperation between competing air lines. They certainly have the interest of the travelling public in mind and there is no doubt that this cooperation averages out and proves beneficial to everyone concerned.

•

We are informed by the E. D. Bullard Co. that thousands of men who wear safety head protection automatically take it off when entering their automobile or truck, and place it above the back seat on the edge under the back window.

This is certainly a convenient place for safety hats or caps, but a dangerous one. Should the driver have to stop in a hurry, his hat would fly off the window ledge and could easily strike his neck or head or that of a passenger in the car.

The company suggests that men keep their safety hats and caps on while driving in the car as an extra, added precaution. Many lives have been saved by the wearing of regular safety hats or caps at the time of an automobile accident.

•

We have a letter from Mr. Herman H. Wagner, president of the Prattsburg (N. Y.) Telephone Co., Inc., in which he refers to an item on this page in the Sept. 5 issue in which we suggested the incentive plan for employes to sell extension and colored telephone sets. Herman informs us that he has been using a system of paying employes an amount in cash for each sale made for some time now. He is highly pleased with the results.

•

Newest of the Kaiser Foundation Health Plan's 40 medical centers, which are located throughout the west and Hawaii, is the Bell Kaiser Hospital in Portland, Ore.

The facilities in these hospitals are up-to-date in all respects, and this includes the telephone service. For example, doctors' telephones are arranged so they can dial an intercom call, and still leave their line available for an incoming emergency call.

Seven call directors are located in the hospital's main departments. These help guide the calls to the proper extension. Centralized dictation by telephone is another telephone feature that makes effective use of the time of doctors and stenographers in preparing medical records.

And all of the telephones—except those in the boiler room—are color sets. Ivory is the color selected for administrative areas. Telephone outlets are provided in all patients' rooms and the telephone colors here are blue or white. For maternity rooms the telephone color is pink.

•

The other day while in Rochester, N. Y., we noted that a space has been provided on the outside front cover of the telephone directory to jot down seven emergency telephone numbers for ready reference. This certainly appears to be an excellent idea. Police and fire department telephone numbers are also listed on the inside front cover.

•

Michigan Bell has started the installation of about 100 drive-up public telephones which permit motorists to make calls without leaving their cars. It was decided to expand this program after obtaining favorable results from field trials at road and curbside locations. These paystations may also be used by pedestrians at parking lots, the end of bus lines and other similar locations.

The payphones have bright orange plastic hoods to protect them from the elements and are lighted at night.

•

People with pets that always seem to be on the wrong side of the door will be interested in a new device called

the "FlexPort." This is a circular doorway for pets which is self-closing and weatherproof. Plastic shutters close the opening after the pet passes through.

It is claimed that training a pet to use the FlexPort requires only a few minutes if the special instructions are followed.

•

We are told that when a diplomat says "yes" he means "perhaps"; when he says "perhaps," he means "no"; and when he says "no," he is no diplomat.

•

A recently developed screwless, lugless, positive locking connector bids well to replace the old style binding post type terminal. This new terminal block takes wire sizes from .010 to .094 diameter.

A quarter turn of a slotted head causes a wedging action of a reverse rotary tapered V-cam. The toggle-like action, with constant pressure at the center line of the cam axis assures positive locking. The sloping sides of the cam bind the conductor in three directions in a tight, vise-like grip.

One or more wires may be connected and all will receive constant pressure at three points. This is certainly an improvement on the old idea of wrapping a wire around a bolt and clamping it between two washers.

•

The Pacific Telephone & Telegraph Co., in the Washington-Idaho area, is carrying on an operation, known as "Mining In the Sky," which is proving good business. In most cases, old open-wire lines in this area, which have been replaced by buried cable, are left intact even though they are unused. During slack periods in the construction program, crews are turned to salvaging the copper wire.

The old wire is shipped to Western Electric's subsidiary, the Nassau Smelting & Refining Co., where it is smelted and poured into bars. Later, the copper will be redrawn into wires for telephone cables, or remanufactured to meet other telephone needs.

The reusable copper also provides the Bell System with a stockpile of metal vital to its operations. By having available this stockpile, it is possible to guard against price and quantity fluctuations in the copper market. Reserve supplies also help the Bell System keep abreast of current needs of copper, and provide for emergencies.

•

Four things never come back—the spoken word, the sped arrow, the past life, and the neglected opportunity.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. We have a case where a molding must be run on a hardwood floor and the subscriber refuses to permit us to use fasteners of any type. Will it be possible to make use of an adhesive to avoid marring the floor?

A. We suggest that you consider the use of rubber flexiduct. This type duct is applied with a special cement on any type of floor without the use of screws or fasteners of any kind. The duct adheres firmly yet can be removed without difficulty.

•

Q. Can you tell us what arrangement is considered most satisfactory to provide continuous 130-volt plate current for carrier systems and repeaters in a small exchange?

A. It is suggested that you consider the use of carrier supply units that are now available. There are two types.

The transistor type operates a 48-volt storage battery that draws 6 amperes at full load.

The magnetic type operates from commercial ac power. This unit transfers automatically to the vibrator and battery upon failure of the ac power.

•

Q. What is the SAGE system and how does it operate?

A. The name SAGE means Semi-Automatic Ground Environment. SAGE is actually a huge electronic complex which has revolutionized our country's calculating jobs, formerly done slowly and laboriously by men, to a high-speed, almost automatic process. The possibility of enemy jet bombers swooping down on us at supersonic speed has made slide-rule methods of defense obsolete.

The whole concept of SAGE was based on the fact that there exists in this country (and only in this country) the greatest network of communication lines ever developed. These are circuits and lines of the Independent telephone companies and the Bell System—lines and circuits that compose the backbone of SAGE.

Over these voice, teletype and data circuits flows vital defense information into 28 great, windowless "direction centers" throughout the nation. Each is the heart of its particular air defense sector.

•

Q. Is there any proof that automobile seat belts do actually reduce serious injuries in accidents?

A. A Cornell University study recently completed claims that nearly 6,000 lives could be saved in a year in automobile accidents if everybody used seat belts.

•

Q. Can you furnish any information as to how solderless connections on central office equipments are standing up in the field?

A. We have been reliably informed that laboratory tests and field trials have to date, indicated that properly designed and made solderless wrapped connections will perform satisfactorily in central office service for a period of 40 years. The use of solderless connections is being increased in the Bell System and they are now wrapping several hundred million connections each year.

A two-year survey of 411,000 solderless wrapped connections in five central offices indicated a lower wire breaking rate than would have been expected with soldered connections. Nor is there any report of solderless connections being pulled off terminals in service or of being partially unwrapped.

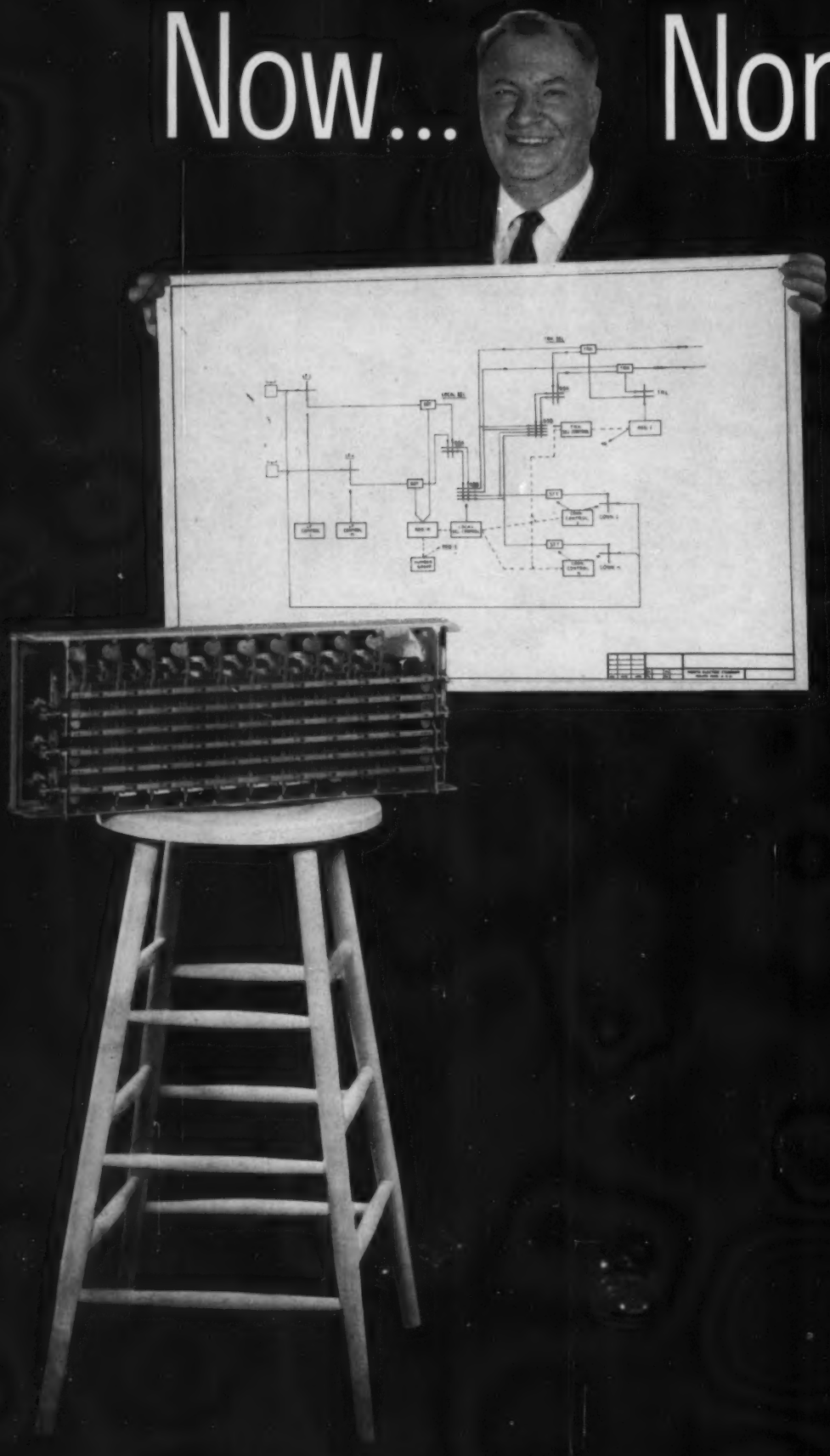
•

Q. What is considered the normal service life of multi-pair Rural Distribution Wire?

A. When this type wire first came into use, it was considered a temporary expedient. Actually, however, it gave much better service and for a longer period of time than was expected.

Many operating companies now plan on it having a 15-year service life. The Rural Electrification Administration plans to tighten up the specifications under which this wire is procured and then give it an estimated service life of 20 years.

Now... North



1884 · 1959
75TH AND GREATEST YEAR

Crossbar for even the smallest exchanges

The new North NX-2 and NX-3 bring to medium and small exchanges the inherent advantages, efficiencies and operating economies which have proven North By-Path Crossbar switching equipment the finest available to the Telephone Industry!

Any exchange, regardless of size, planning cut over to dial operation can now convert to equipment that will outperform anything on the market today—North NX-2 and NX-3 Crossbar.

The development of these two Crossbar systems is another outstanding engineering achievement aimed to strengthen the operations of the Independent operating Telephone Companies—another engineering "first" from

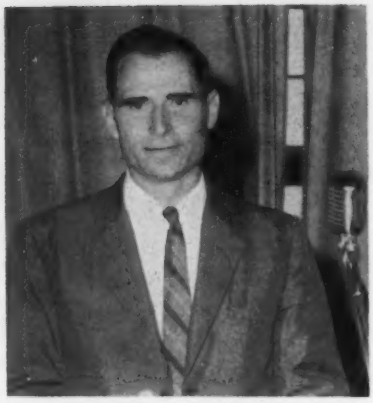
THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

Galion, Ohio

Tarheel Independents Reflect On Expansion in N. C. Meet

By HAROLD N. SIMPSON*



Attorney Drury B. Thompson, of the Southern Bell Telephone & Telegraph Co., Atlanta, Ga., addressing meeting of North Carolina association.

THE 28th CONVENTION of the North Carolina Independent Telephone Association was held in Pinehurst, on Oct. 5 and 6. Registration for the two-day meeting reached the 350 mark.

Speakers at the business sessions provided food for thought on a number of telephone subjects, including sales, public relations, financing, employer-employe relations and telephone law.

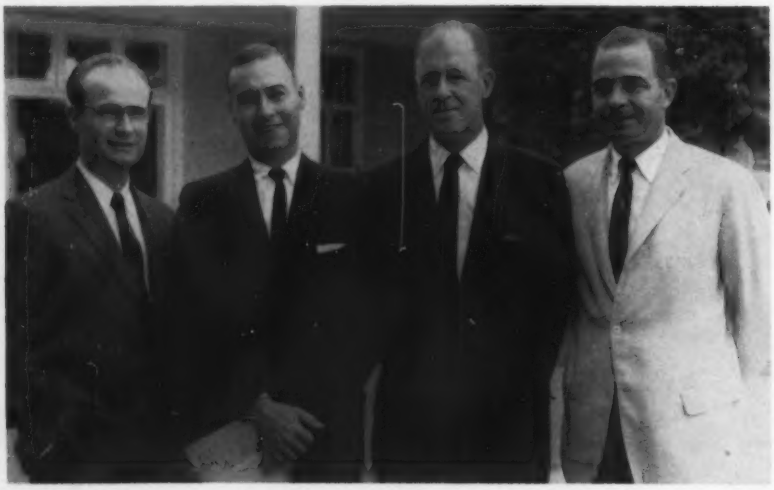
Speaking on the theme, "Sales and Public Relations Go Hand in Hand," Dr. Frank Goodwin, professor of marketing, University of Florida, defined public relations as all of the efforts a firm makes to convey to the public all of the information, ideas and attitudes it needs to form the image the company deserves.

He pointed out that the point of personal contact (each employe) becomes identified as an image of the company, as far as the customer is concerned. Such an attitude or image is formed with every contact an individual employe has with the public. Unfortunately, he continued, often negative attitudes are formed from these contacts.

"We all underestimate the amount of damage we can do by overlooking the little things, such as courtesy, smiling, and remembering to call our customers by name when possible," the speaker reminded.

In conclusion, Dr. Goodwin cautioned, "Your public relations story can never be any stronger than the attitudes formed by your employe at the point of contact."

*Mr. Simpson is Supervisor, Information and Advertising for the Carolina Telephone & Telegraph Co., Tarboro.



Newly-elected officers and leaders of the North Carolina Independent Telephone Association are, left to right: Hylton Wright of Mount Airy, secretary-treasurer; P. J. Long of Tarboro, president; Thomas Sawyer of Weaverville, vice president, and W. B. Garnett of Hickory, newly-elected director.

A talk on "Some Bench Marks in Financing Small Telephone Utilities," was given by Charles W. Pritchard, president of the Stromberg-Carlson Credit Corp., and treasurer of the Stromberg-Carlson Division of the General Dynamics Corp.

Mr. Pritchard said that North Carolina was far ahead of other areas in the United States in converting small, Independent telephone companies to dial operation.

He noted that in a sampling of a group of small companies which had been converted to dial, an average of 35 per cent growth in stations was recorded in the first two years following conversion. These companies, he said, earned an average of 6.9 per cent in net profit and the salaries of the owner-managers were considerably increased.

The speaker remarked that the business outlook for the 1960's is expected to be good in spite of the present tight money market. He said he believes that utility commissions will have to be more sympathetic to small telephone companies in view of the tight money situation.

"Better Employer-Employe Relations —A Must," was the subject of remarks by John G. Page, personnel superintendent of the E. I. duPont de Nemours Co. plant at Kinston, N. C.

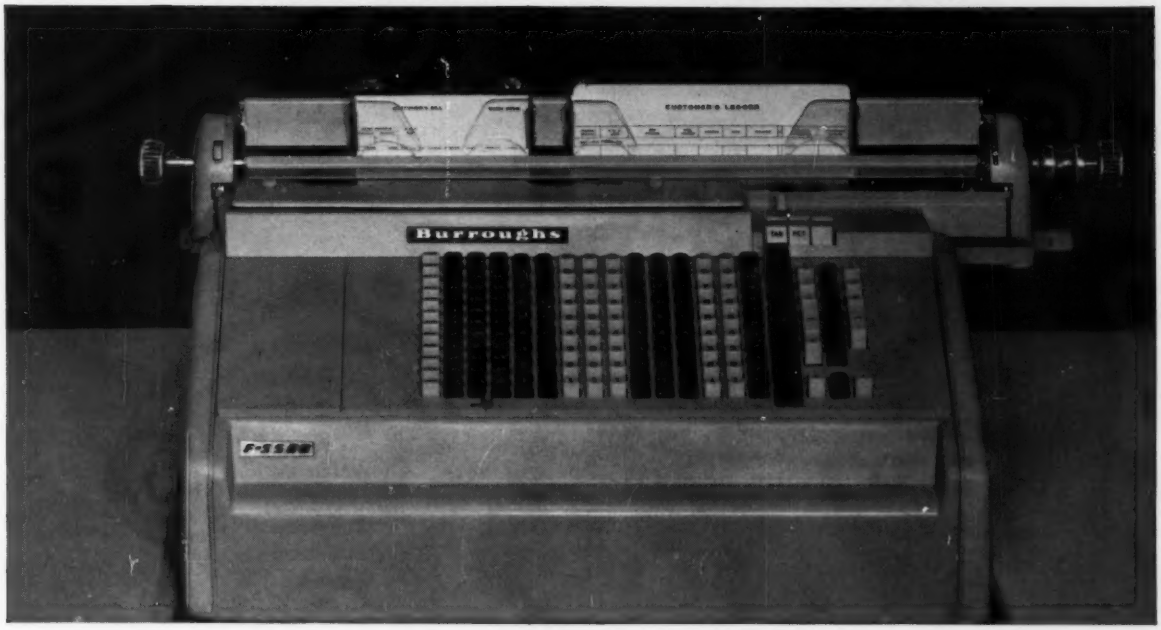
"In recent years there have been great advances in technology; however, leadership is the greatest single factor in productivity. We need more conscientious and intelligent leadership if the increase in productivity is to continue," Mr. Page said.

He defined management as "getting things done through the efforts of other

(Continued on page 54)

NEW BURROUGHS F-5000 FIRST FULLY AUTOMATIC ACCOUNTING MACHINE WITH DUAL PRINTING

NEW BURROUGHS F-5000 FIRST FULLY AUTOMATIC ACCOUNTING MACHINE WITH DUAL PRINTING



Now dual printing is combined with fully automatic accounting! With Burroughs new smartly styled F-5000 Dual Printing Accounting Machine, there are no extra operator decisions to make and no extra keys to punch. The machine prints identical figures—simultaneously—on two original records. Balances are automatic without key depression. And you get far greater flexibility to help you handle more accounting jobs faster. Here's why:

NEW SPEED: Faster printing time speeds machine operation, which is 100% automatic. 33-1/3% reduction of posting cycle shrinks work time considerably. NEW FLEXIBILITY: Dual printing is applicable to a wide range of jobs. Programming capacity is increased up to 100%. Memory capacity is fully utilized.

Weigh these merits, together with the F-5000's keyboard input and 252 digit memory, against your utility accounting jobs—billing, payables, payroll, to name just a few. For full details of the F-5000's time-saving ways, just phone our nearby branch office. Or write to Burroughs Corporation, Burroughs Division, Detroit 32, Michigan. Burroughs—TM

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

56-A11236-35-$50.00 LP

'END

63- A11457-0630-$27.00-0400-$3.00-0524-$4.50

LP

END

53-38-1947-50-0510-$6.00 LP

END

60-A11482-0528-$13.50-0520-$4.75-0610-$15.00 MB

END

From Cowbells To Teletype*

"IT'S ALL GREEK to me," murmured a visitor in the cashier's office at the University of Iowa's General Hospital (as he glanced at coded teletype messages similar to those shown at the upper left hand side of this page).

His bewilderment over these coded messages is nothing unusual. They have been misinterpreted by some as market quotations, government codes and even "someone learning to use the machine."

Actually the message circled in those shown above tells the business office that the Pediatrics Department (60) has ordered up certain services for a private patient (A 11482).

The "A" designates private patient and the number refers to an admissions record card bearing the patient's name, address and other information.

Next it says that the patient is to have an "0528" (electro-cardiogram), an "0520" (laboratory test) and an "0610" (X-ray). And, it closes with the initials of the sender—MB.

Solves Communications Problem

This teletype set-up, as worked out between the hospital and Northwestern Bell Telephone Co. is thought to be the first of its kind in any hospital in the country and it solves a common hospital communications problem.

Every hospital has trouble getting information from its out departments to the business office speedily enough so that an accurate bill is ready for the patient when he checks out.

"Late charges on an out-patient's bill," observed John Colloton, hospital business manager, "are more than just poor business, they're an irritation to the patient and consequently a public relations problem."

Late Entries

Glen Clasen, associate superintendent, added, "And before we had this system the situation got worse the more patients we handled. Often they would have paid their bills and left the hospital before all the charges were down.

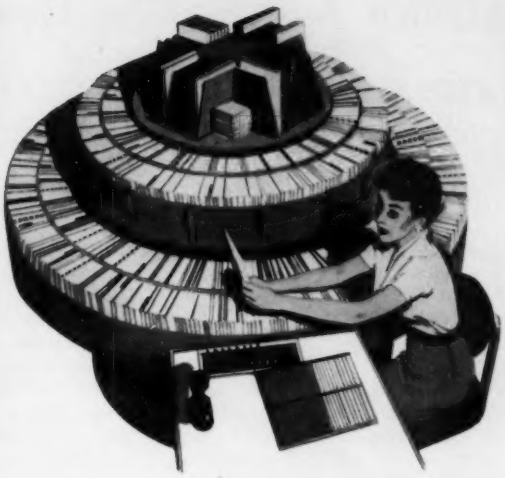
"We'd had the telephone company put in a dial system and intercom, so we thought (they) might be able to help us solve this one."

It was January, 1958 when the hospital administration group got together and kicked the problem around with Northwestern Bell's Fred Backhaus, service engineering supervisor from Des Moines, and Bob Olson, communi-

(Continued on page 48)

*Reprinted from *NWB*, employe magazine of the Northwestern Bell Telephone Co.

Nurse Joan Wing gives information about a patient to receptionist-secretary Jan Huggins for transmittal to the business office.



NEW ACME VISIBLE ROTARY brings line or trouble card data to users with pushbutton speed!

Without moving from their desks around a smartly modern Acme Visible Rotary, 1, 6, 12 or more users have instant access to as many as 250,000 records. No more waste steps between desks and files. No more reaching or stretching. Per hour output goes up, fatigue errors go sharply down. Send coupon for details on power and manual Rotaries, designed to telephone specifications by Acme Visible engineers working closely with telephone operations experts.

50% MORE OUTPUT WHEN SHE STAYS PUT

V-ANGLE LINE CARD TRAY. Usable from either end. Flips open at any card, and stays open with supported V-Angle, leaving both hands free. Measured space control keeps space ready for refiling when card is removed or changed.

ADJUSTABLE PARTITIONS IN LINE CARD TUBS are moveable. In event size of your line records is changed in the future, partitioning is easily shifted to fit your new requirements.

ACME VISIBLE

World's Largest Exclusive Makers of Visible Record Systems
Acme Visible Records, Inc., 4011 West Allview Dr., Crozet, Va.

Without cost or obligation, please send more information about your new equipment and systems for handling phone records. And let me have the address of the nearest representative in your nationwide sales and service organization.

We have_____ line cards and _____ cable and terminal records to handle.

Name_____ Title_____

Company_____

Address_____ City_____ Zone_____ State_____

Alaska Association Hears Communication Progress Report

*By Mrs. Martha P. Cushing**

THE ALASKA TELEPHONE Association's ninth annual convention, held in Anchorage, on Oct. 5, 6, and 7, which marked the 10th year of the organization's life, attracted members, associates, guests and friends from all over Alaska, Canada, and the United States. Approximately 100 persons registered to take part in the various portions of the program.

On the evening previous to the opening session, President H. R. Zinns and Mrs. Zinns of Anchorage hosted a buffet supper which afforded the conventioneers an opportunity to renew old acquaintances and greet new friends.

Principal themes of the convention, both in the general and executive sessions, were the Alaska Communications System, public utility commissions, and toll settlement agreements.

President Zinns opened the first general session with an address of welcome and the introductions of members and guests.

George C. Shannon, city manager of Anchorage, spoke on "What Municipal Government Should Expect of Public Utilities."

Project manager Myron Bakst, of the Federal Electric Corp., brought the assemblage up to date in his speech, "White Alice and Federal Electric." He refreshed memories of members on various aspects of the White Alice System, gave a résumé of some of the problems and accomplishments, and revealed new phases of the operation.

Identifying the FEC with "other Alaskan communicators" who are conscious of their communications responsibilities, Mr. Bakst concentrated most of his attention on the long lines circuits provided by White Alice, and the coordination of the three agencies responsible for its direction: the United States Air Force, the Alaska Communications System, and the Federal Aviation Agency.

He said, "Although the principal users of the . . . circuits are the military, it is interesting to note that the operation was intended to follow commercial communications procedure. . . ."

Mr. Bakst commented that along the point-to-point Integrated Communications System of Alaska, extending over 3,500 circuit miles, every part must be in constant working order to assure customers of the continued service for which they are paying.

Mr. Bakst evaluated the success of the system up to now in the light of the tremendous climatic demands; the physical needs of the personnel based at the often-remote stations; upon operating costs; and the amount of personnel training required.

Despite the great problems during what he terms the "shakedown" period, Bakst reported a system reliability figure for the last 12 months of 99.99 per cent; and also a continuing reduction in operating costs.

Relating the support of his organization to the Alaska Communications System, he stated that "as the program stabilizes, the values of this interchange become increasingly important in making the marginal improvements . . ."

Engineer David Finn, left, received the state of Alaska's Telephone Man of the Year award at the opening session of the Alaska Telephone Association convention. The award was given by the Independent Telephone Pioneer Association's Frontier Chapter, and presented by Bernard Robie Jr., president, right. Mr. Finn, is an employe of the Gustav Hirsch Organization, Inc., consultants to the Anchorage, Alaska, telephone department *(Anchorage Times* Photo).

In conclusion, said Bakst, "similar improvements, as you are aware, are required equally from your own equipments which feed into the long lines system. The active programs which many of you are now undertaking to upgrade and improve your plant are necessary actions to meet the requirements of the rapidly growing state. It is clear, then, that we are jointly participating in an effort to assist the talkative Alaskans in their efforts to continue being the 'talkingest' people in the world."

Lt. Col. Gordon D. Gray, Deputy Commander of the U. S. Army Alaska Communication System, in his talk "ACS-1959" prefaced his address with remarks on the astronomical growth of long distance usage in Alaska during 1958-1959, and reported that some communities have had increases ranging from 13 per cent to 378 per cent.

The fondness which Alaskans have shown for use of the telephone, he said, is undoubtedly due both to the fact that the local telephone companies have provided the most modern types of dialing equipment, and to the great state consciousness born of the admission of Alaska into the Union as the 49th state. Statehood, he pointed out, set off a trend of long distance calling that greatly exceeded the forecasts and resulted in a "completely revised and accelerated forecast of message toll circuit and toll switchboard requirements."

Because the Alaska Communication System (ACS) capital improvements are geared to the annual appropriations of Congress, it is essential to plan for several years in advance in estimating equipment needs, reminded Gray.

A quick review of improvements and ACS progress in the last year included the following:

Complete new buildings and toll switchboard in service at Nome and King Salmon.

New dial equipment installed at Delta Junction, Tol, and Glenallen to provide rural and long distance service.

Major equipment installations completed at Anchorage and Fairbanks toll centers to enable connection to the continental toll dialing network.

"This important mechanization program," said Lt. Col. Gray, "enables our long distance operators to accept calls and directly dial the called party at nearly all the principal population centers throughout the United States and Canada. This includes the 50th State, Hawaii.

"The resulting efficient use of toll switchboard and circuit facilities has enabled the ACS to speed your call on its way with a minimum of handling

(Continued on page 60)

*Mrs. Cushing is secretary-treasurer of the Kodiak Telephone, Inc., and of the Sitka Telephone Co., and is also secretary-treasurer of the Alaska Telephone Association.

You can handle 4 times as many accounts this easy Recordak way!

Just feed toll tickets into the new Recordak Portable and they're photographed

OLD-FASHIONED descriptive billing—with its entries and descriptions of each toll call on the bill—goes out the window when you use the *simple* Recordak Toll Billing System.

Your billing clerk just adds up toll charges . . . enters this total and tax on bill . . . then photographs toll tickets and bill in a Recordak Microfilmer. This simplified bill is sent to subscriber with the original toll tickets.

You keep a film record that's complete and accurate . . . much easier to check when needed. This simple Recordak short cut actually reduces posting 85% . . . virtually halves billing costs. And chance of errors is reduced to absolute minimum.

Your subscribers will like this new billing system, too! Getting the actual toll ticket helps them remember calls . . . cuts inquiries way down.

Get the facts on the new Recordak Portable: Here at last is a completely capable microfilmer that weighs only 24 lbs. . . . that is well within the budget of even the smallest telephone company. Its trim dimensions make it a snap to carry from desk to desk as needed. Just plug it in, and you're ready to take pictures. Mail coupon for further details.

"Recordak" is a trademark

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming

—now in its 32nd year

MAIL COUPON TODAY

RECORDAK CORPORATION
415 Madison Avenue, New York 17, N. Y. AA-11

Gentlemen: Please send free case histories on Recordak Toll Billing System. Also details on the new Recordak Portable.

Name_____ Position_____

Company_____

Street_____

City_____ State_____

Wheatstone Bridge Measurements

By JOHN A. BRACKEN

Part 1

ELECTRICAL measuring instruments are essential to the proper operation and maintenance of a telephone system. Among the different types of instruments developed to meet special conditions is the Wheatstone Bridge. This instrument is commonly employed for the purpose of accurately measuring electrical resistance by what is known as the "null" method. This is a method of measurement in which a known resistance is balanced against the unknown resistance being measured.

The balance is indicated by the absence of deflection of a current flow detector device needle, such as a galvanometer. *Fig. 1* shows a schematic diagram of a typical Wheatstone Bridge. This consists of a network of electrical conductors and associated elements in a circuit containing battery binding posts, marked "BA," galvanometer, marked "G", galvanometer shunt resistance, and shunt keys, designated .01, .1, and 1 and three resistor units, designated "A," "B," and "R," known as the arms of the bridge.

The "A" and "B" resistors are called the proportional, or ratio arms, of the bridge, and are combined into one unit controlled by a single dial switch.

Ratio values equal to .001, .01, .1, 1, 10, 100 and 1,000 are provided by merely rotating the switch dial to the desired ratio. The four resistors in the "R" arm comprise a current flow regulating device known as a rheostat, divided between four separate dial switches, designated units, tens, hundreds and thousands, each switch having 10 small circular contact points marked 0 to 10.

There is another arm, called the "X," or unknown arm not built into the bridge, but which comprises the external resistance being measured.

The galvanometer is a zero center type scale instrument marked with plus (+) and minus (—) signs at opposite ends of the scale. A zero reading of the meter needle indicates that no current is flowing through the galvanometer, or that the bridge is balanced. The bridge battery is connected to the binding posts "BA" in such manner as to send current in the proper direction through the galvanometer. When the needle deflects toward the plus side of the scale, resistance should be added in the rheostat "R" by rotating the dials. When a deflection of the needle is to the minus side, subtract resistance, that is, take resistance from the rheostat by reversing the movement of the dials. Of course, if the polarity of the battery connections are transposed, the value of the plus and minus signs will be transposed also.

Inasmuch as it is undesirable to per-

(Continued on page 62)

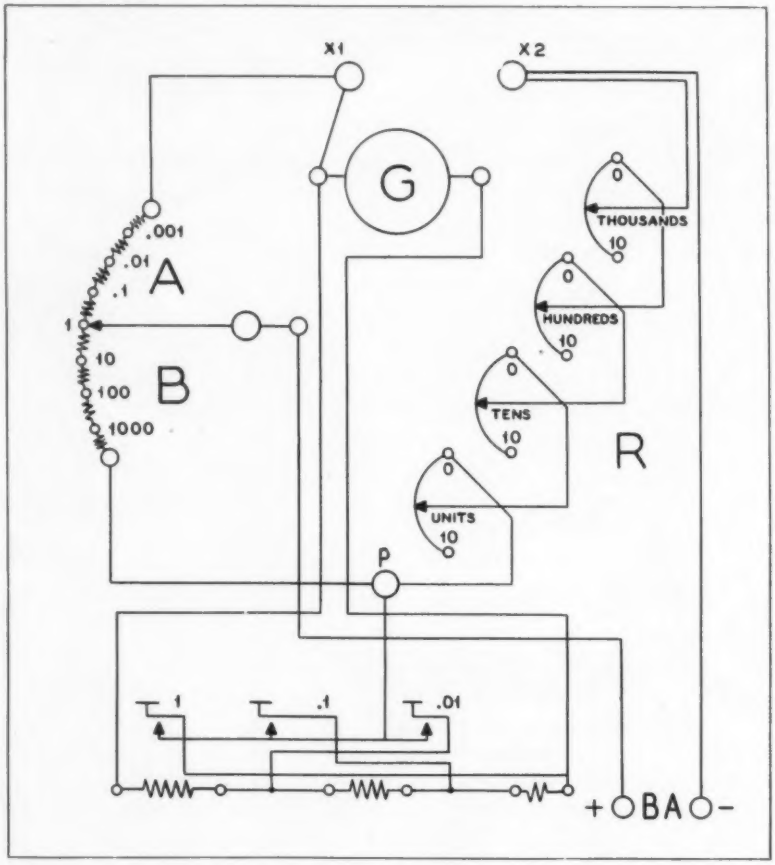


Fig. 1.

more oomph

Like some people, some derricks have a little extra oomph. This derrick—Holan's Series 6800 has it . . . especially in the lower operating ranges.

The 6800 has extra strength because of extra lift cylinders—four instead of two. It lifts 2,000 pounds when only 5½ feet from the ground . . . body-loads 4,000 pounds. Capacity is 8,000 pounds.

More digger oomph, too

The digger here is Holan's 3-speed Series 5400. Maximum torque is 8,400 foot-pounds—tops by far among derrick-suspended diggers. With the power of the derrick and digger combined, you could bore through just about anything.

If you are in the market for power equipment with that extra oomph, get in touch with a Holan Field Representative.

Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio
Plants in Cleveland, Ohio; Griffin, Georgia; Phoenix, Arizona

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

United States-Puerto Rico Cable-Laying Launched

LAYING THE DEEPEST telephone cable in the world, linking continental United States and Puerto Rico, is the task just ahead of HMTS Monarch, which left San Juan, P. R., on Nov. 4.

The 17-million-dollar project is a joint undertaking of the Long Lines Department of American Telephone & Telegraph Co. and Radio Corp. of Puerto Rico, a subsidiary of International Telephone & Telegraph Corp.

Twin cables—one for each direction of speech—will make up the entire system. They will be able to handle 48 simultaneous conversations.

One end will be at West Palm Beach, Fla. From that point the cables will dip into the intra-coastal waterway and go underground across Palm Beach. Then they will plunge into the sea, run 20-30 miles apart, and emerge 1,250 miles later on the shores of San Juan.

Long Lines engineers had to plot a devious course for the cable-laying because of existing telegraph cables, shoals and the tricky, rugged ocean bottom which skirts the Bahamas and Puerto Rico.

About 75 miles northwest of the Caribbean island, the cables will drop to a depth of 5 miles, into the Milwaukee Deep, the deepest point in the Atlantic Ocean. It is part of a gaping, eel-shaped crevice called the Brownson Deep.

A joint announcement by AT&T and ITT said the demand for telephone service between the United States and Puerto Rico has been growing rapidly.

Radio circuits established the first telephone service to the Caribbean island in 1936, according to the announcement. That year 1,586 calls were made between the U. S. and Puerto Rico.

That figure jumped to approximately 35,000 in 1949 and 159,000 last year, the announcement added. In addition, there were nearly 14,000 calls routed to the Virgin Islands via Puerto Rico.

When the cable system is opened, operators in the United States will be able to dial directly to all telephones in San Juan, which total 65 per cent of all telephones on the island. Operators in San Juan will be able to dial direct on 90 per cent of all calls to the U. S. and Canada.

Monarch was anchored in San Juan Nov. 4, her four tanks filled with hundreds of miles of cable, while water and other supplies were being stored in her hold.

The cableship was to reach Palm Beach in a few days and on Nov. 8 begin laying the shore-ends. Then it will return to San Juan, paying out one of the twin deep-sea cables. The second cable will be placed after Monarch loads more cable at various cable plants in Europe. Service is scheduled for early 1960.

Monarch, owned by the British Post Office, has 8,060 gross tonnage, is 480 feet long and can carry 1,600 miles of deep-sea cable. It is the world's largest cable-laying ship. Monarch normally lays deep-sea cable from stern at rate of 6-7 knots.

Cable to be laid in the deep-sea section has an overall diameter of 1¼ inches and weighs a pound per foot. Cable in shallow water requires heavier armor to protect it from tide action, marine life, fishing trawlers and ships' anchors. It is between 1.8 and 3.1 inches in diameter, depending on amount and size of armor used. With heaviest armor, it weighs more than 8 pounds per foot.

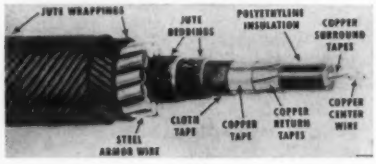
Through the center of each cable runs a copper conductor which transmits the voice currents in one direction. The conductor is wrapped (see cut) with three copper tapes and is insulated with plastic (polyethylene). Covering these are copper tapes that serve as a return conductor for electrical current, and an overlapping copper tape to prevent boring by teredos, a form of marine life. These elements are in turn, protected by layers of fabric tape, jute, steel armor wire and two more layers of jute.

Electronic amplifiers, or repeaters, used in the deep-sea cables amplify about 1 million times the voice currents that pass through them. There will be 59 amplifiers in the cable system. They will be spaced about 44 miles (38 nautical miles) apart.

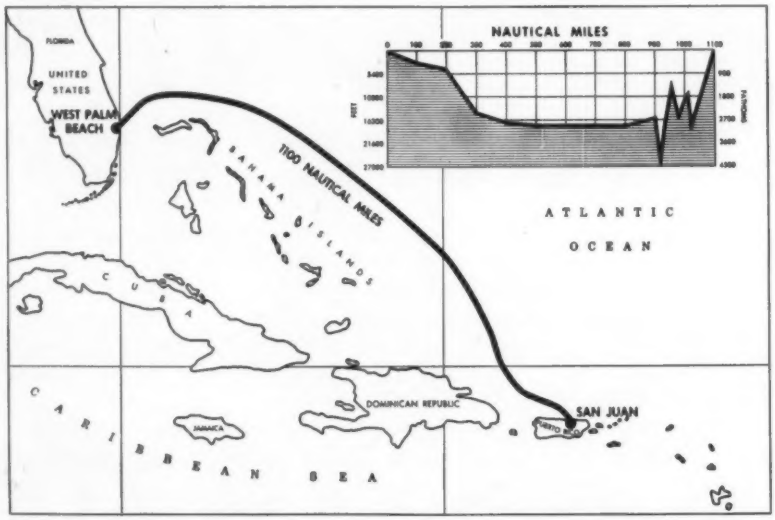
To operate the cable system, about 1500 volts will be required at both ends.

The amplifiers are intricate and precision-made and are designed to operate at least 20 years without attention. Each amplifier contains three vacuum tubes and 60 other electrical components. It is encased in a copper tube about 8 feet long and 1¾ inches in diameter.

(Continued on page 53)



Twin submarine cables (cutaway detail shown) comprise telephone cable system which will link Puerto Rico with mainland U. S. Cable system is joint enterprise of AT&T's Long Lines Department and Radio Corp. of Puerto Rico, a subsidiary of ITT.



Route of new telephone cable system, extending from West Palm Beach, Fla., to San Juan, P. R. Chart above shows profile of ocean bottom on which cables rest.

Courts and Commissions

Two Companies Granted Dial Raises in Minnesota

The Minnesota Railroad & Warehouse Commission on Nov. 2 granted a rate increase to the Pioneer Northern Telephone Co., Aitkin, for its Crosby and Deerwood exchanges. The new rates are to be effective on conversion to dial service in October, 1960.

Extended area service will be provided between Crosby and Deerwood and between the Emily exchange of the Emily Township Telephone System.

The company, through its three exchanges at Aitkin, Crosby and Deerwood, serves approximately 3,225 company-owned and 382 switch line stations.

Under the new rates, the company's net operating revenues will rise from $201,164 to $227,642.

Net income will increase from $50,923 to $58,431, giving the company a 6.07 per cent rate of return on a current value rate base of $961,494, instead of a 5.28 per cent return.

Old rates and new rates (effective on conversion) are as follows:

	Old	*New*
One-party business	$7.45	$9.05
Two-party business	6.45	7.75
Rural business, common battery	4.50	—
Ten-party rural business	—	5.75
One-party residence	4.35	5.55
Two-party residence	3.75	4.65
Four-party residence	3.15	3.65
Four-party special residence	3.65	4.15
Rural residence common battery	3.75	—
Ten-party rural residence	—	4.55

•

Also in Minnesota, the Lismore Cooperative Telephone Co. on Nov. 2 was granted a rate raise effective on conversion, in the late fall of 1960, to dial service.

The company serves 123 local and 253 rural stations through its Lismore exchange. It plans to offer extended area service between Lismore and the Wilmont exchange of the Northwestern Bell Telephone Co.

Net operating revenues, under the new rates, will increase from $17,689 to $26,799. The company will then have a net income of $6,327, giving it a 3.74 per cent return on a rate base of $168,857. With its old rates, the company had a loss of $1,744 yearly.

Old rates and rates to be effective on conversion are as follows:

	Old	*New*
One-party business	$4.75	$7.50
Two-party business	4.25	6.50
Multi-party rural business—dial	4.25*	6.00
Multi-party rural business—metallic	4.00	—
Multi-party rural business—grounded	3.00	—
One-party residence	3.50	5.00
Two-party residence	—	4.35
Four-party residence	3.00	3.75
Multi-party rural residence—dial	4.00*	5.00
Multi-party rural residence—metallic	3.75	—
Multi-party rural residence—grounded	2.50	—

*Company-owned stations that are switched through the Wilmont exchange of the Northwestern Bell Telephone Co. and the Adrian exchange of the Central Telephone Co.

Authorize Two Purchases, Dial Rates in Pennsylvania

The Pennsylvania Public Utility Commission recently approved the following two sales:

York Eastern Telephone Co., Stewartstown, has been sold to the York Telephone & Telegraph Co. (TELEPHONY, Aug. 22, 1959).

The York Eastern company served about 1,270 subscribers through exchanges at Stewartstown, Fawn Grove, and Brogueville.

The York Telephone & Telegraph Co. is an affiliate of the General Telephone System.

The Springs Mutual Telephone Co. was authorized to sell its Springs exchange to the General Telephone Co. of Pennsylvania (TELEPHONY, Dec. 27, 1958).

The Springs exchange provided service for 177 subscribers who will now be served through the General company's Salisbury exchange.

•

Also in Pennsylvania, the Taylorstown Telephone Co. was granted a $4,560 rate increase for the 209 subscribers at its Buffalo exchange (TELEPHONY, Nov. 1, 1958).

Old rates and new rates for dial service are as follows:

	Old	*New*
One-party residence	$3.00	$5.00
Two-party residence	2.50	4.25
Four-party residence	2.00	3.75
Multi-party residence	2.00	3.75
One-party business	4.00	7.00
Two-party business	3.50	6.00
Multi-party business	3.00	5.00

Ask Ida. High Court to Rehear Relocation Payment Decision

The Idaho Supreme Court has been asked by the Mountain States Telephone & Telegraph Co. and the Idaho Power Co. to reconsider its ruling that Idaho's 1957 highway relocation reimbursement law is unconstitutional (TELEPHONY, Oct. 17).

This decision made utilities liable for the cost of relocating their facilities when necessitated by highway construction.

The utilities contend that the court erred in that it did not recognize the power of the legislature to prescribe the conditions under which it will undertake public works and the legislative power to pay for any damages thus caused.

In petitioning for a rehearing, the companies said that the majority opinion "has misconstrued the nature of the respondents' (utilities) rights on public roads." The petition went on:

"Since respondents' rights are of equal dignity with other property rights and contracts, it follows that such rights cannot be impaired or burdened except through exercise of police power.

"The legislature has exercised police power by providing that the respond-

(Continued on page 42)

10-A1 Key System

By pressing the intercom button and dialing one digit, you select any one of up to 9 other phones in the system. A flashing light and/or a buzzer signals the desired party.

By pressing this common "hold" button you hold one call while using another line. Up to 5 outside lines can be "held" at one time.

Flashing button indicates incoming call. To answer, lift receiver & press lighted button. To place call, lift receiver & press any unlighted button. Constant light shows busy line; "winking" light shows call is "held".

gives you 2 big extras!

1. Modern, streamlined telephones
2. A E relays—famous for dependability

Take a close look at the first extra—the Type 86 Telephone—used in Automatic's new 10-A1 Key System. Here's all the beauty and transmission quality of our Type 80 plus finger-fitting pushbuttons (lighted to act also as signals). You'll find the eye-appeal of the Type 86 is a big "extra" with subscribers—an extra they can readily *see!*

There's a second big extra in the 10-A1 Key System—one that can't be seen. It's A.E. relays, the "workhorse" in hundreds of exchanges all over the country—and with a proven record for dependability as part of Strowger systems. *You couldn't have better assurance.*

10-A1 Key System offers many feature combinations:

- Access to as many as six central-office, P.B.X., or private lines.
- Pushbutton "holding"—hold up to five lines.
- Dial or pushbutton-signaling intercom.
- Tie lines—link one key system with another.
- Visible and audible signaling.
- Lighted plastic buttons are also line signals.
- 4 and 6-button key telephones—in 10 colors or black.
- Automatic or manual exclusion.

You'll find prospects for the 10-A1 just about everywhere—banks, commercial garages, real estate agencies and in many other small offices. And keep this in mind: the 10-A1 Key System is fully compatible with the W.E. 1A1 System.

For complete information write *Automatic Electric Sales Corporation, Northlake, Illinois. Or call Fillmore 5-7111.*

Convert Phones to Keyset Operation with new Type 86-A Adapter

You can convert Types 80, 83, 88, or 90 telephones (or other equivalent phones) to keyset operation with Automatic's Type 86-A Key Adapter. This compact unit is available in 4 and 6-button models and in the same key assemblies as the Type 86 Key Phone.

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

ents must relocate their facilities when ordered to do so.

"The legislature, in deciding to exercise police power, acted within the scope of that power in determining conditions under which it should be exercised, including where and how it would distribute the burden resulting from that exercise."

The companies also cited the code that permits the state to pay for a portion of the cost of eliminating railroad grade crossings. This law was not considered by the court, the petitioners said, and it "has been the law in Idaho for 30 years." They claim it is identical in legal import to the 1957 law.

Several other points were in error also, the two companies contend.

Compromise Rate Raise Accepted by SW Bell in Tex.

Southwestern Bell Telephone Co. on Nov. 17 was to put new rates into effect at its Bellville, Tex. exchange.

The rates are the result of a compromise agreement between the company and the Bellville city council, contingent on a promise by Bell to withdraw an injunction suit pending in Texas district court.

The injunction had been sought by the company to halt the city from enforcing the rate schedule which had been in effect.

Under the new ordinance, adopted Oct. 19, one-party residence service will increase from $5.00 to $5.40; two-party residence from $4.00 to $4.25 and one-party business from $9.00 to $10.25.

The compromise, according to Bellville Mayor H. M. Brouillette, also included an agreement by the company to refrain from seeking any additional rate increases for a minimum of 18 months.

Independent Seeks EAS With Michigan Bell

The Michigan Public Service Commission on Oct. 20 was asked by the Southern Telephone Co., Brooklyn, to approve extended area service between Southern's Hanover-Horton exchange and the Jackson exchange of the Michigan Bell Telephone Co.

To cover the cost of providing this service, Southern is seeking raises of 25 cents to $1.00 for residence service and from $1.00 to $2.00 for business subscribers.

Fred R. Harris, president of the Southern company, said that the suburban area of Jackson is rapidly extending into the Hanover-Horton area.

With this EAS, the local calling area of the Hanover-Horton exchange would be increased by approximately 34,000 telephones, Mr. Harris stated.

Gets Increase in Virginia

The Lexington Telephone Co., Charlottesville, has been granted a rate increase by the Virginia Corporation Commission. The raise is expected to give the company an additional $8,300 in gross monthly revenues. Two examples of the increase are one-party business service up from $8.50 to $11 and four-party residence service increasing from $3.25 to $4.50.

Asks to Sell in Wisconsin

The Wisconsin Public Service Commission on Nov. 12 was to hear the application of the Cameron Farmers Telephone Co. to sell to the Chibardun Telephone Cooperative, Inc.

Approve Raise in Idaho

The Troy Telephone Co., Inc., has been granted a $2,353 rate increase by the Idaho Public Utilities Commission, it was reported on Oct. 20. The

---

Cal. W&T Helps Pioneer Joint Apprenticeship

A telephone industry first in California was reported to have been realized in September when 40 apprentices from California Water & Telephone Co., Monrovia, were graduated as journeymen under a joint apprenticeship program. State completion certificates, issued by the California Apprenticeship Council, were awarded at a banquet in Arcadia. This certificate is honored throughout the world as proof of the journeyman's competence and skill.

The joint apprenticeship program, the company states, is the successful result of a joint effort on the part of California Water & Telephone Co., Local 1008 of the International Brotherhood of Electrical Workers, and the state of California. Its purpose is to train participating apprentices in every phase of the trade they choose. Instruction is offered in equipment installing, cable splicing, maintenance, installer repair and for the positions of testboardman, instrument shopman and switchman.

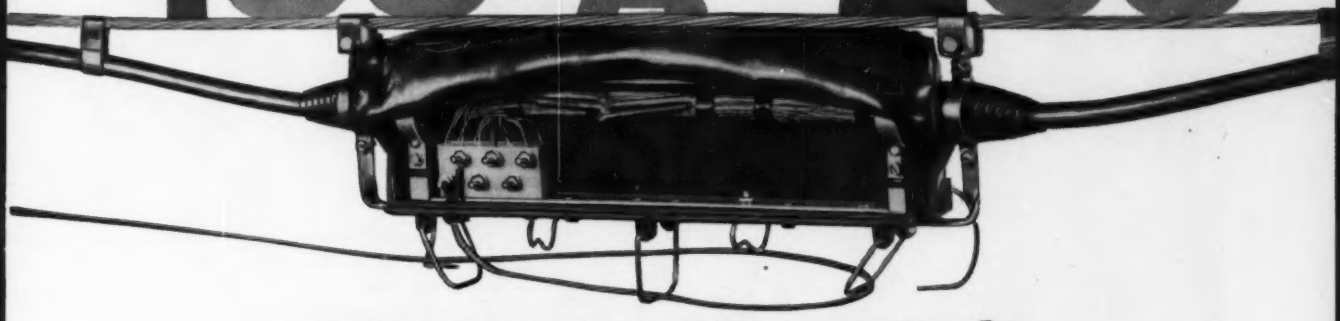
The 40 employes of California Water & Telephone Co. who became journeymen received their training on the job and at night school. They were instructed by other employes of the company.

The program is supervised by a joint apprenticeship committee, composed of eight members—four delegated by the company and four by the union. In addition to supervising and coordinating the apprentices' training, this committee selects the subjects to be taught and acts as a board of regents in giving final approval on an apprentice's promotion to journeyman.

The successful operation of the joint apprenticeship program has made it possible for California W&T to help employes improve themselves while also making available an increasingly skilled working force. At present, nearly 200 other employes are receiving training under the program, which is reported to be the first of its kind to be offered in California's telephone industry and among the first in the industry throughout the country.

Employes of California Water & Telephone Co. who were the first graduating class of a joint apprenticeship program, sponsored by the company, an International Brotherhood of Electrical Workers local, and the State of California. Fourth from the right in the first row is Charles F. Hanna, chief of the division of apprenticeship standards for the State of California.

100-A • 200



ready access cable terminals

for terminals and straight splices

300 • 400

ready access cable closures

for branch splices

for use with plastic jacketed, plastic insulated cables up to 2.2″ in diameter

READY ACCESS CABLE TERMINALS

Catalog Series 100-A . . . for cable up to 1.0″ O.D.
Catalog Series 200 . . . for cable from 1.0″ to 2.2″ O.D.

READY ACCESS CABLE CLOSURES

Catalog Series 300 . . . for cable up to 1.0″ O.D.
Catalog Series 400 . . . for cable from 1.0″ to 2.2″ O.D.

Up to four 6-pair Reliable Catalog No. 105 Terminal Blocks can be added to both terminals and closures, or the space can be used for loading coils. The flexible neoprene cover can be folded back while internal wiring is altered to meet changing requirements.

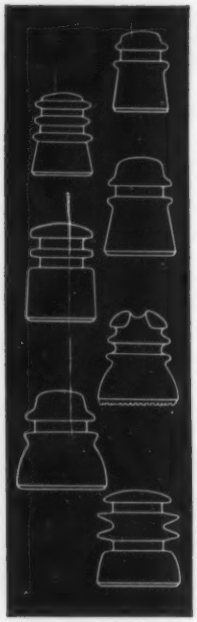
Reliable

ELECTRIC COMPANY • FRANKLIN PARK, ILLINOIS

A SYMBOL OF INTEGRITY SINCE 1909

NUMBER 17 - *Toll Grade. Has about the longest leakage path possible with a single petticoat. For exchange circuits and lines not exceeding ten miles.*

HEMINGRAY INSULATORS



Easily and Economically Installed

Hemingray Glass Insulators stand up under severe conditions, do not deteriorate, provide the service you need to assure continuous operation of communication lines. The dependability of Hemingray Insulators as proved by their years of sturdy performance is one of the reasons behind their world-wide acceptance.

Hemingray has pioneered many insulator developments to keep pace with requirements, improve communication systems, assure you a dependable source of supply.

The immediate availability of these insulators is further assurance of Hemingray dependability. An up to date distribution system makes Hemingray Insulators available when you want them and where you need them.

Hemingray Glass Insulators are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

There's a Hemingray Insulator to meet every communication line requirement.

World standard for quality Since 1870

HEMINGRAY INSULATORS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

company, according to the commission, would have had a net loss of $2,449 annually if the new rates had not been authorized.

United Utilities Rejects GT&E Offer to Buy

At a special meeting of the board of directors of United Utilities, Inc., held in Kansas City, Mo., on Nov. 5, a proposal from General Telephone & Electronics Corp. to acquire United Utilities was submitted. Under this proposal, ⅝ share of the presently outstanding common stock of the General Telephone & Electronics Corp. would be exchanged for each share of United Utilities, Inc., common stock outstanding.

After consideration of the proposal, a majority of the United Utilities directors, according to a company spokesman, voted not to recommend acceptance of the General Telephone & Electronics Corp. proposal on the basis that it did not fully reflect the present and potential value of the telephone operating properties comprising the United Utilities, Inc. system.

Asks to Sell in Missouri

The Missouri Public Service Commission on Nov. 3 received the joint applications of the Clearfork Telephone Co. to sell and of the Leewood Telephone Co., Garden City, to purchase and operate telephone properties in Garden City, East Lynn, and Latour.

Incorporate in Oklahoma

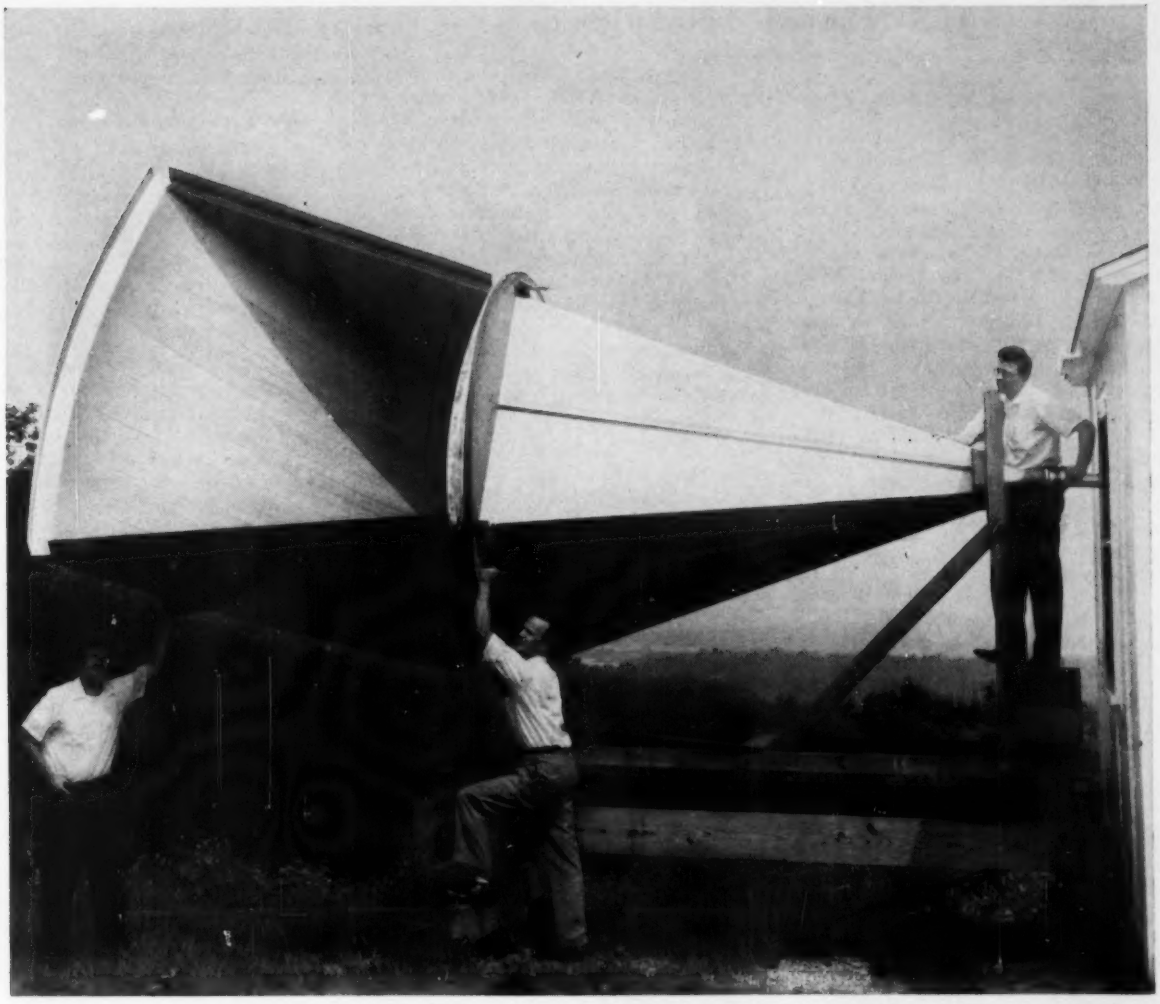
The Pocasset (Okla.) Telephone Co., Inc., has been granted a charter of incorporation. Capital stock of $30,000 was authorized. Incorporators are Fred Wait of Pocasset, and A. C. Buchanan and Joseph G. Rucks, both of Oklahoma City.

Incorporate in Nebraska

Articles of incorporation have been filed in Nebraska by the Lone Star Telephone Co., Oshkosh. Incorporators are Merrit Lake, Virgil W. Cooper, Norris Passmore, Norval Passmore, Jesse Cooper, Clayton Richstein, Lee Mumford, and Eliza McConkey, all of Oshkosh.

France-Algeria Cable

The French Ministry of Posts & Telecommunications has announced a telephone cable will be laid from Le Canet, near Perginan (France), to Mers el Kebir (Algeria) in 1961. The cost of the cable, it is reported, will be 6 million dollars.



At Bell Laboratories, Holmdel, N. J., a horn reflector antenna is beamed skyward by scientists Edward Ohm, David Hogg and Robert DeGrasse. The maser amplifier, which employs a ruby cooled in liquid helium, is inside building at right. Over-all "noise" temperature of antenna, amplifier and sky is only 18°K at 5600 megacycles.

ANOTHER STEP TOWARD SPACE COMMUNICATIONS

The above antenna is part of a new ultra-sensitive radio receiving system under development at Bell Telephone Laboratories. It has extraordinary directivity. Beamed skyward, it ignores radio "noise" from the earth, yet picks up extremely weak signals from outer space.

The signals are amplified by the latest Bell Laboratories "maser" amplifier. The maser principle was first demonstrated, using gas, by Prof. C. H. Townes and his collaborators at Columbia University. Bell Laboratories scientists applied it to the solid state guided by a theoretical proposal of Prof. N. Bloembergen of Harvard University. Their latest traveling wave maser amplifier employs a ruby mounted in a waveguide. The ruby is excited to store energy. As signals pass through, they absorb this energy and are thus amplified. The device uniquely combines the characteristics needed for practical space communication: extremely low inherent noise and the ability to amplify a broad frequency band.

At present the receiving system is being used to pick up and measure minute radio noise generated by the atmosphere. It also foreshadows important advances in long distance communications. For example, it could extend the range of space-probe telemetering systems, could help make possible the transatlantic transmission of telephone and TV signals by bouncing them off balloon satellites—and has numerous applications in radio astronomy and radar.

This pioneer development in radio reception is one more example of the role Bell Laboratories plays in the pursuit of better communications technology.

BELL TELEPHONE LABORATORIES

WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT

THE ETERNAL TRIANGLE

Concluded from page 23

"Gosh, Mom,"—and summarily she went out of business.

"Profit" Needs Explaining

I'm sure all of you have read about Diogenes, the ancient Greek philosopher who went about the streets of Athens in broad daylight with lantern in hand searching for an honest man. I believe there is a great need for a modern-day Diogenes in the telephone business. One with the special kind of lantern which will find an honest telephone man. An honest telephone man who has the fortitude to stand up in a crowd and shout, "I am in business to make a profit!" An honest telephone man who is articulate enough to explain the meaning of the word "profit" and why it is essential to good telephone service and the perpetuation of the telephone business.

Now to the third side of my Eternal Triangle—the shareowner. Let's talk for a moment about the individuals, institutions, corporations, etc., who have invested their savings or the savings of their clients in the tools, equipment and plant of American business. In a free economy such as we enjoy in this country it is the investor to whom we look for funds. And what does an investor expect from a company? He has the expectation of some financial reward. He knows that *his* company must make a profit in order to compensate him properly. A company which cannot reward its shareowners with adequate returns is in a precarious position. The pages of American business history are full of the thousands of companies which have been dashed against the rocks of disaster because they failed to give proper attention to the needs of their shareowners.

In the telephone business the customer does not take the risk—it is the shareowner. The cables, wires, central office switches, tools, vehicles and other plant and equipment are purchased from funds supplied by the investor—money which he is willing to risk. But risk is predicated upon the opportunity for gain—the greater the risk, the greater the financial gain expected. Gain to the shareowner is possible only when the company is making sufficient profit to pay him in direct proportion to the risk he takes.

The shareowner wants the company to prosper and grow because he knows that this is the only way that the value of his investment can grow.

One Source of Income

Telephone companies have only one source of income—money paid by their customers for services rendered. Telephone rates, then, must be adequate to cover the full costs of operation, including taxes, and leave enough over to pay the shareowner a reasonable return on his investment—or a "profit" if you like.

The shareowner wants to know that the management and the employes of the company are working in his best interest. He has a big stake in the company and insists that his company be managed by competent people. And if the present management cannot do the job he expects, then he has a right to demand some changes.

The shareowner also desires a company which provides good service, has good public and employe relations, and has financial integrity.

For contrast, and to summarize my remarks, let us now consider the Eternal Triangle in still another way. The matter of comparisons.

Recognition and complete job satisfaction are the ends for the employe. Good telephone service is the end for the customer. Profit is the end for the shareowner.

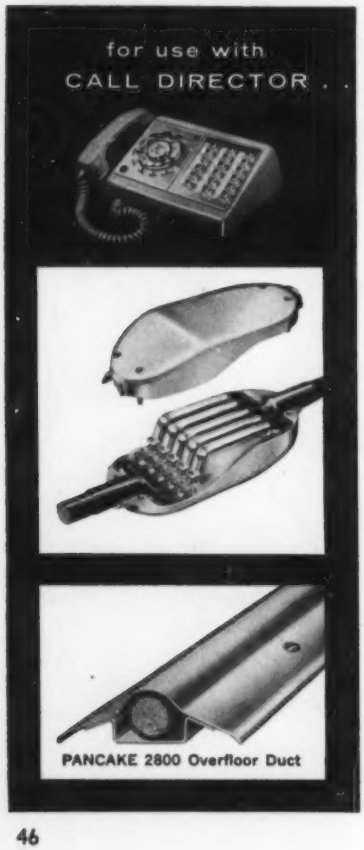
To some extent the employe can be compelled. The customer and the shareowner, however, must be persuaded.

All three must be communicated to in terms which are meaningful. The employe must recognize that he is part of a team employed to serve the customer and benefit the shareholder. The customer must realize that good telephone service depends upon adequate compensation for the employe and the shareowner. The shareowner must see profit as the final result after providing the employe with good working conditions and the customer with complete telephone service.

This is the Eternal Triangle which we in the telephone business must live with day in and day out. In each business transaction, in every policy decision, in each order and action, the Eternal Triangle must be kept in perfect balance.

Enthusiasm a Must

"Through zeal, knowledge is gotten, through lack of zeal, knowledge is lost; let a man who knows this double path of gain and loss thus place himself that knowledge may grow."—BUDDHA.



new!

TERMINAL FITTING —HOUSING FOR FIVE CONNECTORS

Used with the Bell System Call Director Telephone, Wiremold's 2857T Terminal Fitting effectively provides an ideal housing for cable connectors. Of rugged diecast aluminum, it can be mounted on floors, walls, desks (side or kneehole).

For away-from-wall locations, Pancake 2800 Overfloor Duct is the neat way to house and protect the cable. Fitting and duct both hold 100- or 75-pair cable.

Get the full story from Wiremold or your electrical distributor.

THE WIREMOLD® COMPANY
HARTFORD 10, CONNECTICUT ADams 3-6251

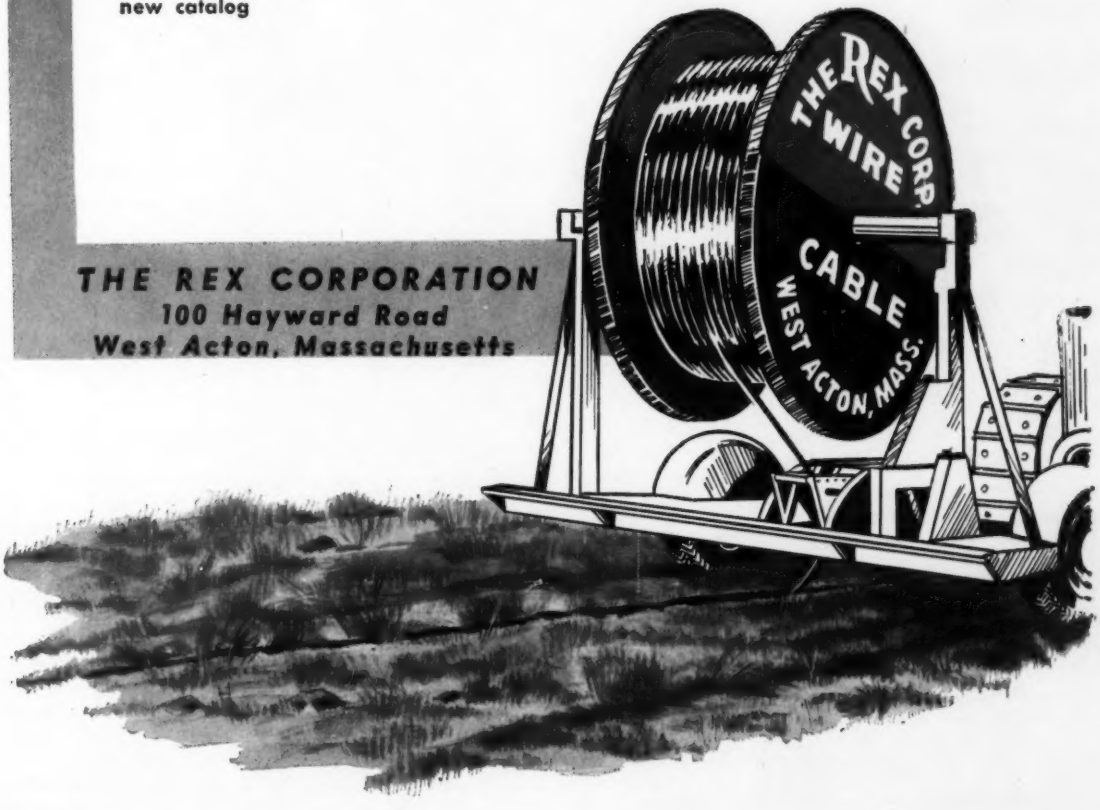
Rex

DIRECT BURIAL CABLE

TO R.E.A. PE-23 SPECIFICATIONS

For information on our complete line of plastic insulated telephone wire and cable — write for new catalog

THE REX CORPORATION
100 Hayward Road
West Acton, Massachusetts



No. 1958-AR

NEW KLEIN
Replaceable Gaff Adjustable Climbers

These new Klein Replaceable Gaff Climbers assure maximum quality and safety. We recommend leg irons be replaced after three sets of gaffs have been used.

The easily replaceable gaff is held in position by a self-locking screw. Full impact is absorbed by the gaff and leg iron. No load is transmitted to the screw.

Adjustable to 14½, 15, 15½, 16, 16½, 17, 17½, 18, 18½ and 19 inches. Made in matched pairs, right and left. Available with triangular ring at ankle or riveted ankle loop. Aluminum finish. Every climber individually tested.

WRITE FOR BULLETIN 559

Bulletin 559, giving full information on Klein Replaceable Gaff Adjustable Climbers, will be sent on request.

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York.

Mathias KLEIN & Sons
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

FROM COWBELLS TO TELETYPE

Concluded from page 32

cations engineer from Davenport—special services group.

The initial installation on Mar. 26, 1958, put 16 machines in the various departments of the hospital. Each of the "receivers" in the business office had eight "sending" machines looped in with it, sending information about the patient, the scheduled tests and their respective charges.

Since then, another "sender" has been added in a remodeled department. And another needed "receiver" was added to give more balance within the groups . . . consequently, better service.

"We're still studying the service and we may even be able to improve on this set-up," said Mr. Backhaus.

Louise Parker, University of Iowa General Hospital business office teletype operator, receives coded message from one of the departments about an out-patient.

Out-Patient Problem

Most hospitals, particularly large state institutions like this one, have many patients who are "out-patients" . . . that is, patients who aren't registered in a hospital room, but who live "out" and come to the hospital for treatment.

Most "out-patients" come from any of Iowa's 99 counties and some come from an adjoining state. A variety of services draw "out-patients" to Iowa City—some for laboratory tests, some for X-rays, some bring a special problem that their physician has referred to a specialist on the staff.

A year ago an out-patient would complete his laboratory tests or whatever particular hospital service he needed and then show up at the cashier's office to pay his bill. Maybe they had some of the charges, maybe none of them . . . and maybe they didn't even have a record that the person was being treated there.

It took the patient about five minutes to get to the cashier, while charges, coming from perhaps five different departments, might be there in a half-hour or maybe not until the next day. So the patient paid a bill and thought he was through.

Time Lag

Louise Parker, teletype operator in the business office who receives the coded transmissions, continues . . . "Some charges would come down a day late . . . and once in a while we received lab test charges as much as three months after a person had left the hospital."

"Then, when we billed and notified the patient, it was so late that he didn't even remember the tests. And another problem we used to have: Just because we took a patient's blood only once, he wondered why there were so many charges. Actually there might be as many as eight lab tests more from that specimen of blood," Mrs. Parker added.

"We just don't have the trouble we used to have with patients and charges . . . this teletype sure is wonderful. . . ."

On the mechanical side of hospital activities a lot of pioneering has been done in the SUI hospital.

Communications-wise, it's a far cry from the turn of the century, when patients summoned nurses to their beds by ringing cowbells . . . to today, when information is sent through lengthy corridors in seconds by teletype.

General of Fla. LaCroix Award Winner's Son Is Hero

Like father, like son.

When John S. Bosick, lineman with General Telephone Co. of Florida, rescued an 18-month-old St. Petersburg boy from drowning in a pond in April, 1958, little did he realize the example he was setting for his son, Mike.

Nine-year-old Mike Bosick recently saved 2-year-old Jeffrey Fagone from drowning in a small pond behind their homes in Pinellas Park, Fla.

Mike was fishing from a pier and heard something hit the water. Looking around, he saw Jeffrey struggling in the pond. Mike jumped into the water and pulled Jeffrey to safety. The nine-year-old was assisted in reviving Jeffrey by an unidentified Florida Power Corp. worker, who administered artificial respiration.

In the senior Bosick's rescue of the 18-month-old boy, almost the same circumstances prevailed. Mr. Bosick was working with a telephone construction crew when a small boy called that a

baby was drowning. Bosick jumped down from the pole he was climbing, leaped into the lake and carried the baby ashore. He was assisted by other General telephone employes in applying artificial respiration and returning the baby to his mother.

For his heroism, John Bosick was the first Florida employe of General Telephone Co. to receive the company's national LaCroix award, presented to employes for outstanding acts of bravery. Mr. Bosick was given the LaCroix bronze medal and a $250 cash award.

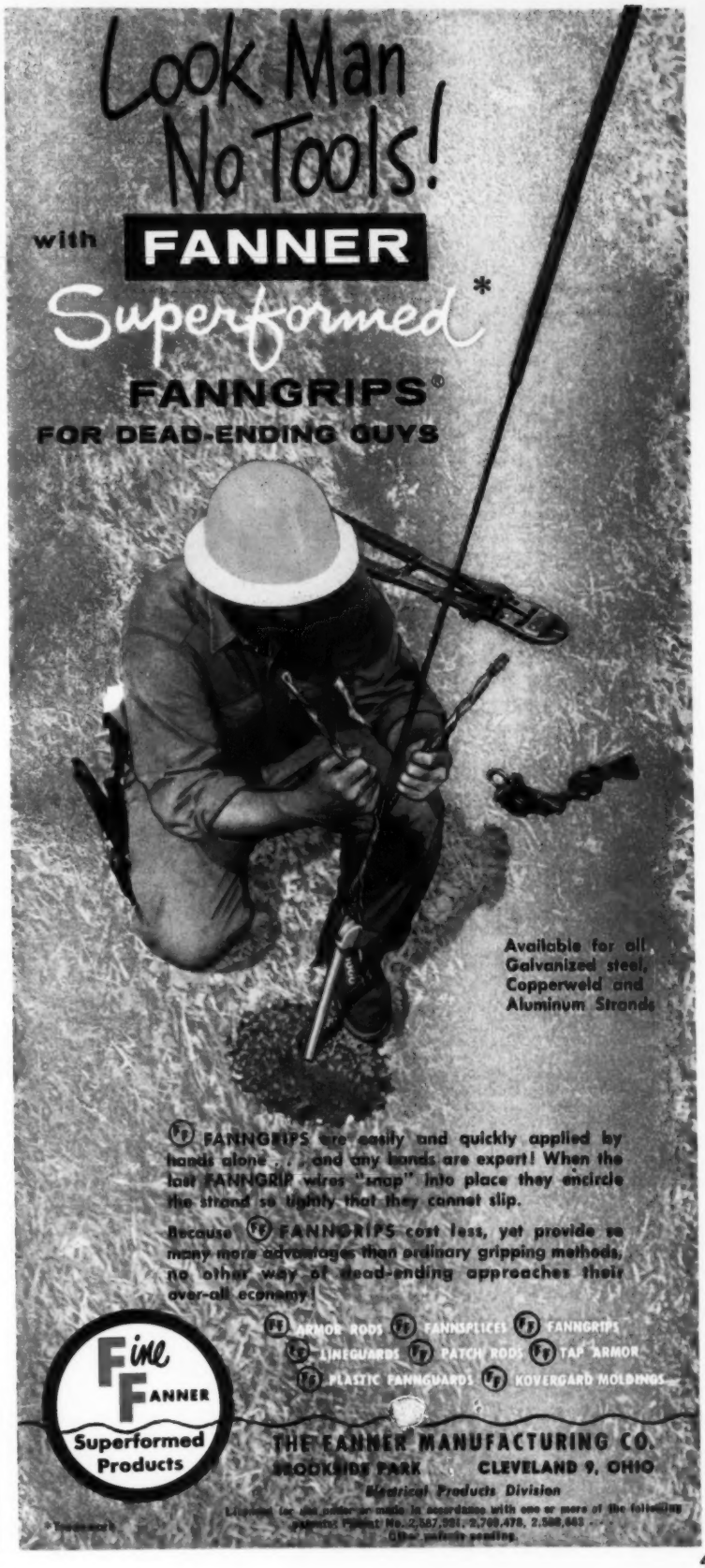
Loan Criteria

"The credit attitude [of commercial banks] seems to be that a substation, motor, machine tool, tractor, or other piece of equipment does not have the relative security value that an automobile or refrigerator has — and that net worth of a business is more important than its paying reputation. I suggest that you consider changing your criteria on loans to business and industry from a 'net worth, balance sheet' method to the 'ability to pay, know-how, good management' yardstick."—ROBERT S. STEVENSON, *president, Allis-Chalmers Mfg. Co.*

CANCER'S DANGER SIGNALS CAN BE SAFETY SIGNALS

You can do **two things** to guard yourself against cancer: Have an annual health checkup. Alert yourself to the seven danger signals that could mean cancer: **1.** Unusual bleeding or discharge. **2.** A lump or thickening in the breast or elsewhere. **3.** A sore that does not heal. **4.** Change in bowel or bladder habits. **5.** Hoarseness or cough. **6.** Indigestion or difficulty in swallowing. **7.** Change in a wart or mole. If your signal lasts longer than two weeks, go to your physician. Give him the chance to give you the chance of a lifetime.

AMERICAN CANCER SOCIETY®


Look Man No Tools!
with FANNER
Superformed*
FANNGRIPS®
FOR DEAD-ENDING GUYS
Available for all Galvanized steel, Copperweld and Aluminum Strands
FANNGRIPS are easily and quickly applied by hands alone . . . and any hands are expert! When the last FANNGRIP wires "snap" into place they encircle the strand so tightly that they cannot slip.
Because FANNGRIPS cost less, yet provide so many more advantages than ordinary gripping methods, no other way of dead-ending approaches their over-all economy!
ARMOR RODS FANNSPLICES FANNGRIPS
LINEGUARDS PATCH RODS TAP ARMOR
PLASTIC FANNGUARDS KOVERGARD MOLDINGS
Fine Fanner Superformed Products
THE FANNER MANUFACTURING CO.
BROOKSIDE PARK CLEVELAND 9, OHIO
Electrical Products Division

Use *Preformed*™ GRITTED ARMOR RODS (Adapters)

the new way to install service drops and splicing cases. Protective armor increases diameter of messenger to accommodate D Span Clamps or splice case attachments.

Money Saving For Rural

Use *Preformed*™ ALUMINUM ALLOY ARMOR RODS

with one-bolt clamp to avoid expensive J-Hook installations. Armor Rods protect insulated messenger from clamping stresses and increase holding power.

Preformed™

FOR ECONOMIC AND EFFICIENT RURAL CONSTRUCTION

Preformed communications products are distributed by leading Local and National Telephone Suppliers

Use *Preformed*™ flexible SPLICES

the fast, inexpensive method of joining the stripped messenger by hand without tools. Flexible Splices "breathe" and flex with the messenger, and eliminate stress points.

Attachments Distribution Wire

Use *Preformed*™ DEAD-ENDS

the most economical method of dead-ending the stripped messenger at any point WITHOUT CUTTING THE MESSENGER WIRE. Preformed Dead-Ends eliminate stress points which cause fatigue failure of the line. Easy hand application without tools. Can be reused.

Patented — U.S. Patent Numbers 2,761,273; 2,609,653; other patents pending

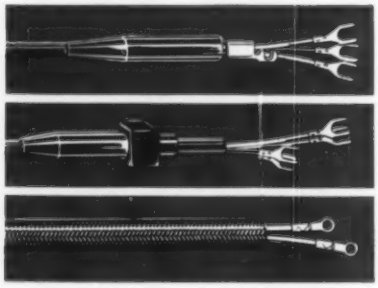
PREFORMED LINE PRODUCTS COMPANY
DEPT. BR-1
5349 St. Clair Avenue, Cleveland 3, Ohio

ECONOMY
QUALITY
LONG SERVICE LIFE

ALWAYS
BUY
COMMERCIAL

It's as simple as that! . . . and Commercial installations are proving this point to hundreds of users year after year. So whenever you order cords—remember, A-B-C and be satisfied!

You name 'em...we make 'em!



- Straight Neoprene-Jacketed Instrument Cords with twisted or parallel inners.
- Spiraflex Retractile Cords
- Nylon Operators' Cords and Switchboard Cords, with or without plugs.
- Neoprene Handset Cords with moulded strain reliefs.

All Commercial Instrument Cords Now Available in Color

Write for Catalog, Samples and Prices.

COMMERCIAL CORD
COMPANY, INC.
CLIFTON SPRINGS, N. Y.
Phone: HOward 2-2311

QUALITY CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS

"Sidewalk Supers" Get The Word by Telephone

The latest twist in rare and wonderful telephone uses can be found at the Manhattan (N. Y.) construction site of Western Electric's new office building—where every weekday 6,000-9,000 passers-by receive up-to-the-minute telephone reports on work in progress. Handy color telephones, mounted beneath rows of special observation windows, give viewers a tape-recorded briefing on construction activity taking place before their eyes.

At present, 45 telephones in nine colors are available for the use of passers-by. The telephones are positioned in groups of 15 at three "observation posts," which permit different views of the work going on below. Each observation post has 18 feet of safety plate glass windows, behind which the sidewalk superintendents can stand and watch.

The recorded message runs about 55 seconds. Recording equipment is at Western Electric's 195 Broadway headquarters, and is connected by leased line to the building site, where the circuit runs through an amplifier and thence to the telephones.

Automatic time switches turn both amplifier and recording equipment on in the morning, and off again late in the evening. The telephones are covered at night.

With this new use of the telephone, the sidewalk superintendent comes into his own at last. No longer must he stare at a "thingamajig" doing "something or other" to a "whatchamacallit." He merely picks up a telephone which provides him with a fresh construction report, explaining the machines and operations he sees. Special messages are added to describe events of unusual interest.

Public and press have responded to this new convenience enthusiastically, Western Electric reports. Sidewalk supers often pack themselves three and four deep at observation windows, waiting for a look and the latest report—and scores of "regulars" stop by daily to keep posted. Stories have appeared in the *New York Times* and *Herald Tribune* and on the AP and UPI wires—including a *Times* article of June 6 describing the reactions of six visiting Soviet engineers, one of whom thought the telephone facilities "remarkable."

"We have nothing like this in Russia," the *Times* quoted their spokesman as saying, "but we do conduct guided tours at major projects, for engineers and school children."

Western Electric also reports the Voice of America broadcast a story about the installation and picked up some of the recordings directly.

The recorded telephone messages, in addition to providing facts about construction progress, direct the spectator's attention to glass-covered posters and displays set at intervals into the fence that surrounds the site. These give further facts about the building and its construction, and also information about Western Electric's operations in the Bell System.

This unusual telephone facility was

Sidewalk superintendents all—at construction site for Western Electric's new 31-story office building in New York City. Color telephones provide current information and interesting sidelights on the job. The tape-recorded briefing is changed about every other day as work progresses.

adopted to offset some of the inconveniences and annoyances of building in a busy city. Other goals were to help identify Western Electric and its Bell System role in the public's mind, and to promote Bell services.

The new office building, to be known as "222 Broadway," will provide office space for some 3,000 Western Electric employes now scattered in more than a dozen locations in downtown New York. Completion of the 31-story skyscraper, at a cost of about 20 million dollars, is expected by spring of 1961.

PUERTO RICO CABLE

Continued from page 38

On the inside of the tube are overlapping steel rings that protect the amplifier and enable it to withstand enormous pressures encountered at the bottom of the ocean. Amplifiers are built to withstand 8,000 pounds per square inch.

About 2,600 miles of cable are needed for the project. Cable was manufactured by three companies: Standard Telephones & Cables, Ltd., of London, England; Norddeutsche Seekabelwarke at Nordenham, Germany; and Simplex Wire & Cable Co. at Newington, N. H. Amplifiers were made by Western Electric Co. at Hillside, N. J.

New terminal equipment will increase usual capacity of deep-sea cable systems from 36 to 48 circuits. These will supplement 24 radio circuits.

The cost, exclusive of tax, of a three-minute call from New York to Puerto Rico, is $7.50 on weekdays and $6.00 nights and Sundays.

Operators on the U. S. mainland will be able to dial direct to all telephones in San Juan. This is about 65 per cent of all the telephones in Puerto Rico. Conversely, Puerto Rican operators will be able to dial direct almost 90 per cent of all U. S. mainland and Canadian calls.

Power Is Dangerous

"Power is a heady narcotic. The more power vested in a man, the more his mind will be closed to the healthy atmosphere of reality.

. . .

"Gradually, he identifies his wishes with the will of the people.

"Finally, he believes that whatever he says is true.

"Because of this human frailty, the principle of a government of laws, not men, was established and constitutions were made."— RAYMOND MOLEY, *columnist.*

You can add 7 of these Profitmakers where there's 1 now

...without additional cable!
...without more open-wire lines!
...without impairing or interfering with existing service!

TYPE 46-A POSTPAY PAYSTATION CARRIER

OFFERS SEVEN CARRIER CHANNELS ON A SINGLE PHYSICAL CIRCUIT — EXISTING OR NEW

CENTRAL OFFICE TERMINAL

The ideal, low-cost way to provide additional *high-quality* postpay paystation service — where wire facilities are not available — where plant expansion for such facilities must be postponed — where additional seasonal postpay paystations don't warrant expensive plant installation.

★ *Low First Cost* . . . uses standard AM principles to simplify and minimize components — and low frequencies, below 140-kc.

★ *Low Installation Cost* . . . simplicity assures it. No expensive test equipment needed — and no time wasted using it. Built to "Connect and Operate".

★ *Low Operating Cost* . . . a complete channel uses only 9 tubes of 2 types. We can show you savings figures!

★ *Low Maintenance* . . . Rugged high-quality components with ample safety factor. Tubes at any radio or tv store. No need for spare channels.

★ *100% Recoverable* . . . and easily. You can quickly relocate any station in a more favorable spot.

Write or call us for Bulletin 359-A

BUCKEYE TELEPHONE & SUPPLY CO.

1250 Kinnear Road Columbus 21, Ohio

Telephone — HUdson 8-0655 (Area Code 614)

"HIRSCH COMPLETIONS SPAN THE EARTH AND THE FIELD"

Good Contracts
and
Solid Planning
Can't Hold Back Winter or Take The Sog Out of Spring
But GHO
Experience
and
Preparedness
will Push YOUR JOB
to
Successful Completion
in the ARCTIC
TROPICS, DESERT
or Wherever
Troublesome
Climatic Conditions
Threaten
Schedules
Profits and
Reputation

COMMUNICATIONS ENGINEERING AND CONSTRUCTION WITH AN INTERNATIONAL REPUTATION

Gustav Hirsch Organization, Inc.

1347 West Fifth Ave.
Columbus 13, Ohio
HUdson 8-0611

NORTH CAROLINA CONVENTION

Continued from page 30

people," and labor as "manual work." Then the speaker noted that good labor-management relations consists simply of cooperation of two groups of people working toward the same goal.

In order to achieve this cooperation, Page pointed out that we must: (1) Eliminate prejudice and selfishness; (2) recognize the fact that all people have different personalities and must be approached differently to achieve the same goals, and (3) realize that all people live by the same basic principles.

Everyone, he noted, desires fair treatment, clear instructions, security and recognition.

"We must remember," said Mr. Page, "that management decisions can affect the personal life of an employe as well as his business life. Decisions should always be based on facts."

He further pointed out that good employe-management relations are built on the foundation of good day-to-day relations between the foreman and labor.

"Failure to give employes full information often hurts these relations," the speaker said. "Give your employes the whole truth and you can trust their judgment. In this way, many harmful misunderstandings will be avoided."

Drury B. Thompson, general attorney of Southern Bell Telephone & Telegraph Co., Atlanta, Ga., spoke on "Telephone Law—Some Recent Trends."

Mr. Thompson said that law is simply a set of rules for living which create both rights and obligations. These

Outgoing president of the North Carolina association, W. S. Beddingfield (left), of Mount Airy, introduces incoming president, P. J. Long of Tarboro, to the convention.

Dr. Frank Goodwin, professor of marketing at the University of Florida told the North Carolina convention, with a great deal of force and humor: "Sales and Public Relations Go Hand in Hand."

rules are not static, but change as life changes.

"Today, we are still in the midst of a change in our economy which began after World War II. We have experienced a great rise in our economy which is predicted to continue," Mr. Thompson pointed out.

He called attention to the increase in telephones in the South during this period. In 1945, there were 2,361,000 telephones in the South as compared to about 8 million telephones today.

"All of this growth, including the telephone plant required to provide service for these new telephones, has been carried out in a period of inflation and expansion of the economy. The investment per telephone in North Carolina has continued to increase.

"However, the meeting of the demand for new telephone service in North Carolina during the past 14 years has been carried out in an orderly manner and I feel that this can be taken as a tribute to the utilities commission as well as to telephone companies," Mr. Thompson emphasized.

The speaker related this growth and the impact of inflation to telephone company earnings. He said that, as early as 1898, the principle of "fair value" was established in connection with utility earnings. This concept recognized that a utility is entitled to earn a fair rate of return based on the fair value of its property.

However, he continued, the U. S. Supreme Court modified the fair value principle and allowed flexibility by utility commissions in setting rates.

"During the inflationary period, a number of methods have been used in determining rates and in general, the utility commissions have tended to hold the line in rates, believing that the inflation was to be only temporary.

"Recently, there are signs of a trend by regulating bodies toward recognizing the inflationary economy and the need for improved earnings. In addition, 16 states have reaffirmed the fair value principle," he said.

The attorney also spoke briefly on recent trends in the allocation of microwave frequencies, competition in the directory cover field, and on control of nuisance telephone calls.

P. J. Long of Tarboro, was elected president of their association by the North Carolina Independents. Mr. Long was chosen to succeed W. S. Beddingfield of Mount Airy.

The directors also elected the following as officers: vice president, T. H. Sawyer of Weaverville; vice president, Royster Tucker of High Point; vice president, H. E. Hussey of Durham;

HOOKS on TOP—BOLTS on BOTTOM

It's as simple as that to install. The top hook slips over the guy wire without the groundman stretching. A single bolt at the bottom fastens the guard to the guy rod, the guy wire or the guy loop. Guy guards that are easy to install are easy to get installed where and how you want them.

808 guards are available in 7 and 8 foot lengths in both galvanized steel and aluminum. Turned-in edges give added strength and safety.

Use these Aids to Pole Line Hardware Selection:

1. Chance T-48 Catalog.
2. Pole Line Hardware Cross Reference Guide.

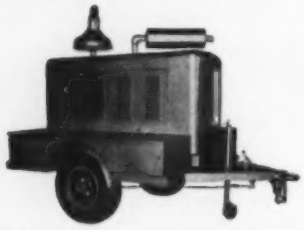
CPS9-13

A. B. CHANCE COMPANY
CENTRALIA, MISSOURI
A. B. Chance Co. of Canada, Ltd., Toronto

There's VERSATILITY in TELEPHONE SYSTEM SERVICE and Portability with...

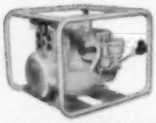
U.S.

Complete "versatility" is possible for telephone system service with portable U.S. Versa-Trailer standby emergency power units in sizes from 10 kw to 35 kw capacity.



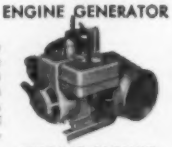
Units provide both single phase power for lights and 3-phase power for other needs. Many exchanges in an area can be served by a single unit.

Telephone systems use U.S. portable generating sets for on-the-spot power needs. Sizes 750 watts and larger, air-cooled.



ENGINE GENERATOR

Portable engine blowers provide convenient means of furnishing fresh air to manholes, or for ejecting smoke, fumes, etc.



ENGINE BLOWER

Motor driven blowers like engine driven counterparts, are invaluable for exhausting contaminated air.

MOTOR DRIVEN BLOWER

for complete information write . . .

UNITED STATES MOTORS CORPORATION
LIGHT U.S. POWER
OSHKOSH · WISCONSIN

UNITED STATES MOTORS CORPORATION

110 W. 5th Ave. / Oshkosh, Wis.

and as secretary-treasurer, Hylton Wright of Mount Airy.

Newly elected as a director was Wilson Garnett, of Hickory. Four other directors, all re-elected, are as follows: J. F. Havens of Tarboro; H. E. Hussey of Durham; Mrs. J. D. Morris of Roxboro, and Robbins Tilden of High Point.

General of Cal. Company Installs Braille PBX

"Operating at peak efficiency," is what Douglas Aircraft Co. executives in Long Beach, Cal., have to say about Joseph L. Able, blind telephone switchboard operator, who recently transferred from their Tucson, Ariz., plant to work in the Long Beach process engineering department of plant operations.

Mr. Able was blinded in Peoria, Ill., when he was 21 in a shotgun accident. After his recuperation, he and five other blind operators received "on the job" telephone switchboard training from the chief operator at Peoria State Hospital. After nine years service at the hospital, he moved his family to Tucson, and joined the Douglas facility, where he continued to work as a switchboard operator for three-and-a-half years.

In anticipation of his arrival in California, Douglas Aircraft Co. and the General Telephone Co. of California cooperated to devise a telephone set-up that would be efficient and adaptable to Mr. Able's particular needs.

Since he must operate a Braille switchboard, special Braille equipment had to be ordered by General Telephone Co. from the Mountain States Telephone Co. in Tucson.

Ron Tingle, instrument shop foreman, and Howard Fletcher, PBX repairman of General Telephone's instrument repair shop in Santa Monica, took great pains to modify a standard PBX board for touch operation, so that when the Braille attachment arrived from Arizona, it would be synchronized with the switchboard. Then, when the attachment arrived, more tests were made until General's instrument repairmen felt sure it was a smooth-running operation.

Unique in its function, the Braille switchboard can be operated as quickly as a regular switchboard. When it comes alive with a subdued "buzz," Able's left hand moves swiftly across a horizontal board attached to the left side of the key shelf. On this board are small aluminum buttons, one of which has popped up. Quickly his deft fingers find it, identify it, and a few words and seconds later, the call is completed.

So rapidly and efficiently is the call handled that no caller could guess that the operator is blind and his switchboard is a special Braille board—one

The first Braille switchboard to be installed by the General Telephone Co. of California was placed in operation in September at the Long Beach division of Douglas Aircraft Co., Inc. Seen here discussing the new installation are Maurice E. Starr (left), installation foreman for General Telephone Co.'s Long Beach district; and Joseph L. Able (right), blind telephone switchboard operator, who transferred to Douglas Aircraft Co.'s Long Beach division from Tucson, Ariz. This is one of 50 such installations now operating in the United States.

of approximately 50 such boards in use within the United States. These compact Braille switchboards were developed by Bell Laboratories some years ago in response to special requests from telephone companies and have been manufactured by Western Electric, as needed.

Looking very much like any standard PBX, a Braille switchboard can also be operated by a person with sight. Its distinguishing characteristic, of course, is the special cabinet mounted adjacent to and flush with the keyshelf. This cabinet weighs about 50 pounds, measures 13 by 17 inches and is about 6 inches deep. Its aluminum buttons, popping up as calls come in, are identified by Braille characters spelled out with small brass studs.

Mounted on the face of the switchboard and hardly noticeable are transparent plastic strips with raised Braille figures on them, too. These enable the operator to find by touch the proper jacks to use in initiating or completing calls. When a call comes in, he matches the Braille figure above the popped-up number button with the corresponding number on the face of the switchboard, and plugs in.

When the call is finished, the board signals with a slightly different sounding "buzz;" the disconnect button for the cord circuit used for the call pops up; and the operator goes through the standard disconnecting procedure.

Obituary

HENRY HOUCK, 67, senior member of the Pennsylvania Public Utility Commission, died recently.

Mr. Houck had served on the commission since 1943, when he was appointed by Gov. Edward Martin. In 1953, he was reappointed by Gov. John S. Fine.

Before joining the commission, Mr. Houck served from 1928 to 1940 as a judge of the Schuylkill County Court.

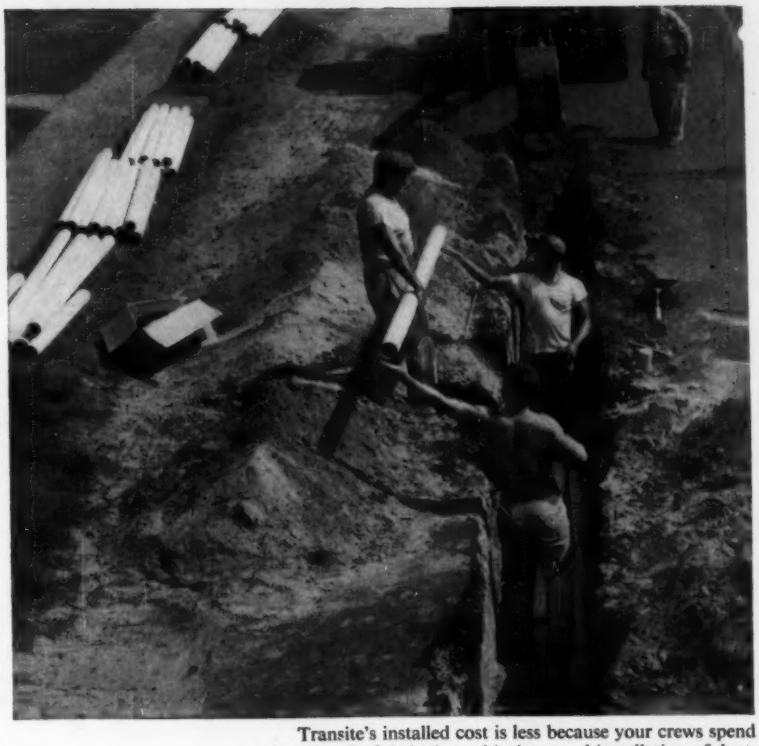
Born in Greensburg, Pa., Mr. Houck was a graduate of the University of Pennsylvania. He served in the Navy during World War I.

Houck resided in Shenandoah, Pa.

Survivors include his wife, Emily; son, Paul M. of Philadelphia; daughters, Mrs. Margaret Goodman of Lansdowne and Mrs. Elizabeth Ackell of Wyncote, and five grandchildren.

Birthright

"No man is born into the world whose work is not born with him. There is always work, and tools to work withal, for those who will; and blessed are the horny hands of toil."—LOWELL.



Transite's installed cost is less because your crews spend virtually all of their time with the actual installation of duct.

Now–save 5¢...10¢... up to 15¢ per duct foot!

Here's why Transite Telephone Ducts offer these substantial savings in installed cost!

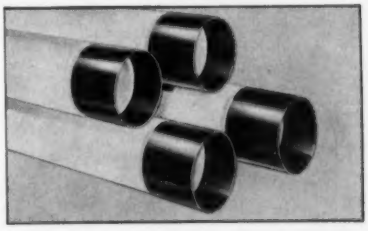
IN virtually every part of the nation installations of Transite® Telephone Ducts are at a new high!

Why? For the simple reason that no other material offers so many practical advantages . . . with each contributing to lower *installed* costs. In fact, savings can run as high as 15¢ per duct foot!

With Transite you're working faster, easier . . . with smaller crews. For there's no complex joining and difficult positioning. Instead, the 10' Transite lengths are easily handled by one man. And the plastic coupling used with Transite makes a tight joint that goes together in seconds . . . stays tight for the life of the line.

More time and labor are saved in splaying...curving...bypassing...and in manhole connections! Every one of these on-the-job requirements is met with a minimum of "extra" in time and material.

With Transite you have fewer items to stock, less warehousing, lower inventory costs. There's less handling of material all around. As for breakage, there's practically none. Savings are substantial.

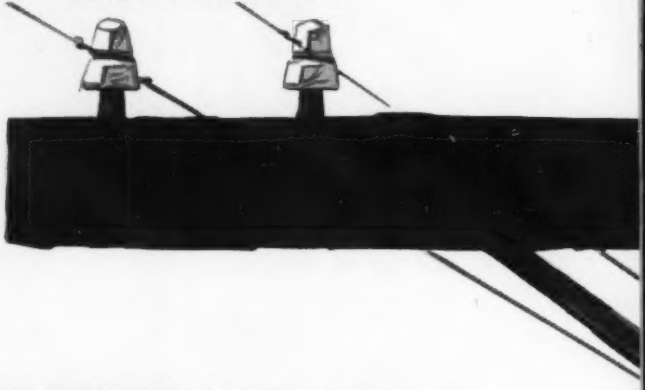


Write today for brochure TR-239A, "Transite Telephone Ducts." It gives complete information on why Transite's installed cost is lower . . . as well as why it reduces future costs in cleaning, rodding and repair. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ont.

JOHNS-MANVILLE JM PRODUCTS

AE-Lenkurt

HAS **EVERYTHING** YOU NEED FOR PROFITABLE CIRCUIT EXPANSION



LENKURT SHORT-HAUL CARRIER, for instance . . .

Lenkurt's Type 45C family of open-wire carrier systems offers an inexpensive way of expanding circuit groups beyond the capacity of low-frequency carrier.

Types 45CA, CB, CC and CD provide four 4-channel allocations in the frequency range of 2 kc. to 156 kc., with all the advantages of Type 45 equipment for large circuit groups. In addition, the Type 45C terminals provide direct interconnection at carrier frequencies with all other 45-class systems for open-wire, cable or radio, and coordinate with W. E. Type O carrier.

Type 45C systems are transistorized, require a minimum of space, and employ interchangeable plug-in channel units. And each channel has its own compandor and regulator.

The AE-Lenkurt team of *telephone* engineers will handle as much of the planning and installation as you wish. And AE will provide "follow-thru" service *for the life of the equipment.*

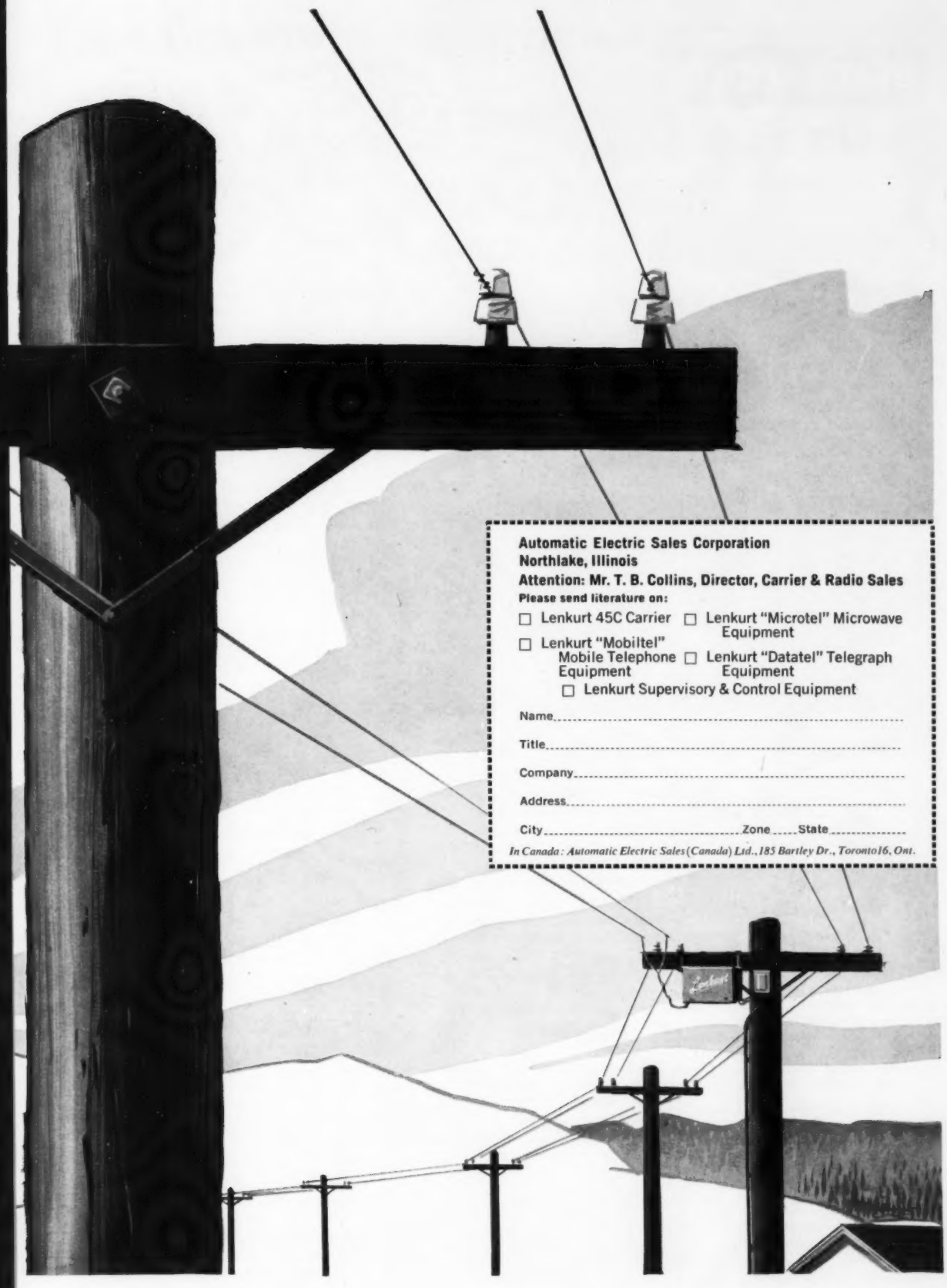
For full information on the Lenkurt Type 45C systems or companion equipment, call your Automatic Electric representative, or fill in and mail coupon today.

ALL YOUR COMMUNICATIONS NEEDS
FROM ONE
DEPENDABLE SOURCE

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM



Automatic Electric Sales Corporation
Northlake, Illinois
Attention: Mr. T. B. Collins, Director, Carrier & Radio Sales
Please send literature on:

- ☐ Lenkurt 45C Carrier
- ☐ Lenkurt "Microtel" Microwave Equipment
- ☐ Lenkurt "Mobiltel" Mobile Telephone Equipment
- ☐ Lenkurt "Datatel" Telegraph Equipment
- ☐ Lenkurt Supervisory & Control Equipment

Name.....

Title.....

Company.....

Address.....

City..... Zone..... State.....

In Canada: Automatic Electric Sales (Canada) Ltd., 185 Bartley Dr., Toronto 16, Ont.

WHAT'S NEW AT

SUTTLE

Eliminate Induced Radio Noise!

SUTTLE announces a new W.E. equivalent product, the SE-1542-A Inductor with SE-101-A Cover, to solve completely one of the most irritating and costly maintenance problems confronting the telephone man. The SUTTLE SE-1542-A Inductor is a combination 4 terminal block and choke coil which eliminates completely induced radio noise at subscriber telephone locations. Replacement of the standard 4 terminal block at the telephone instrument with an SE-1542-A Inductor provides clear transmission, eliminating radio station broadcasts picked up by the telephone line by induction. *Every operating company will need several of these new SUTTLE units.* Uses SE-101-A plastic cover. Write or call SUTTLE or your nearest distributor for literature and prices.

4-Point Blocks and Plastic Covers

SUTTLE SE-42-A standard 4 terminal blocks and plastic non-shorting covers are now available in brown, ivory, black, or in the new blue-beige color. Completely shorting resistant, SE-42-A blocks and covers can be delivered immediately by SUTTLE or your distributor.

SE-42-A — $.36 each.

SUTTLE DIRECTORY COMPANY

401 N. 15th St., Lawrenceville, Ill.
Phone: Lawrenceville 782
135 S. La Salle St., Chicago 3, Ill.
Phone: DEarborn 2-3108

ALASKA ASSOCIATION HEARS PROGRESS REPORT

Continued from page 34

time. In July, there were completed and placed into service new modern toll switching equipment and a new toll dial switchboard at Ketchikan, bringing that city and the entire southeastern Alaska area into the continental toll dialing network. Ground has been broken for a new toll building at Juneau to house a complete new toll dialing switchboard installation. . . ."

"Let me, at this point, state that these improvements in long distance service would be meaningless without the splendid coordination and cooperation of all the local telephone companies in Alaska. After all, it is through the telephone in your business office or home that you and the rest of the Alaska using public avail themselves of long distance service," said Gray.

In summary said the ACS Deputy Commander, long distance telephone usage in Alaska is over 25 per cent higher than a year ago as against an average 9 per cent growth in other states. To meet this unusual growth and to accommodate continued long distance telephone stimulation, the ACS has placed increasing emphasis on improved toll operating techniques, good plant maintenance practices and continuing improvement of the transmission characteristics of our long distance telephone circuits.

"The Department of Defense program in 1961 will result in a greatly increased number of voice circuits for use by the ACS to meet both intra- and inter-Alaska long distance requirements over the major toll routes. These facilities are scheduled to be added to the Alaska toll network in the summer of 1961.

"Engineering and construction necessary to provide these facilities are already in progress. Continuing coordination with the Federal Aviation Agency will expand the present toll circuit network at intermediate points in southeastern Alaska."

"Keeping pace with the tremendous and far-flung public long lines communications needs of the new State of Alaska is, admittedly, a continuous challenge," says Gray, "one the Alaska Communication System believes it and cooperating agencies, public and private companies, are aggressively meeting."

James Strickland, carrier engineer for the Automatic Electric Sales Corp., addressed the convention on "Telephone Carrier Equipment Technique."

A report on Western Union, which pointed up the accomplishments of the "Grand Old Lady" during the past year, was given by A. A. Baird, district manager of the Western Union Telegraph Co., of Seattle, Wash.

The president of the Last Frontier Chapter of the Independent Telephone Pioneer Association, B. F. Robie, gave a résumé of the organization's activities for the last year, its aims and accomplishments, the latter, especially in the program of aid to children with hearing difficulties.

At the opening session of the convention, David Finn, an engineer for the Gustav Hirsch Organization, Inc., of Columbus, O., received the 1959 "Telephone Man of the Year" award from the state of Alaska. The presentation was made by the Last Frontier Pioneer chapter. Mr. Robie made the presentation (see photo).

The award was made to "the member of the telephone industry who contributed most to the advancement of the art of telephony in the state of Alaska during 1959."

Gustav Hirsch Organization, Inc., as consulting engineers for the telephone system of the city of Anchorage, Alaska, placed Mr. Finn in charge of engineering and expansion of the telephone system in connection with the addition of three satellite exchanges to serve the rapidly growing community.

At the completion of this project, Mr. Finn was to be assigned to engineering on the Virgin Islands Telephone System recently purchased by International Telephone & Telegraph Co.

A highlight of the second day's convention program was the talk by General Telephone Co. of the Northwest President A. J. Barran, of Spokane, Wash. Mr. Barran's subject was "Toll Settlements."

In relating the experience of the Bell System companies and of the Independent companies in toll settlement negotiations, Mr. Barran said:

"Originally toll settlements were based on the concept that only the facilities between the originating central office and the terminating central office were involved and thus excluded the use of the exchange facilities. This was referred to as the board-to-board principle. The present concept, which came into use about 1943, includes the use of the exchange facilities in toll settlements. This is known as the station-to-station principle."

He recounted the fact that after World War II, it was felt that compensation to Independent companies was very inadequate, and as a result of

negotiations between the USITA Toll Settlements Committee and Bell System representatives and cost studies that were conducted, what are known as the USITA Separations Procedures came about.

Later in the history of the toll studies, many Independents, feeling dissatisfied with toll settlement contracts, entered into negotiations aimed at arriving at new contracts for the interchanged traffic. They were hampered, said Mr. Barran, by a lack of "agreement on the ground rules for their study."

Finally, in October, 1947, the "Separations Manual" was issued by a joint Special Cooperative Committee on Telephone Regulatory Problems of the National Association of Railroad & Utility Commissioners and the FCC.

Barran told of revisions in the 1947 Separations Procedures, and of recent revisions in what is the October, 1957 NARUC—FCC Separations Manual, in which both USITA and the Bell System actively participated.

Studies are still being made for the entire interchanged toll business, and there have been attempts, he said, by USITA to reach agreement or concurrence of the Bell System in a revised edition. [*Editor's Note: At the recent USITA convention it was announced that USITA had reached an agreement with Bell System representatives for an annual increase of about 12 million dollars in message toll compensation based on estimated 1959 overall toll traffic volume.*] The revision is being currently issued to members for individual toll study use. Any areas not in agreement with the Bell System companies will have to be ironed out in individual negotiations, Mr. Barran said.

Mr. Barran also referred to the "Charleston Plan" for both intrastate and interstate messages, the Independents taking the position that what applies to interstate messages should also apply to intrastate messages as far as toll is concerned, and the Bell System believing the plan should apply to interstate business only.

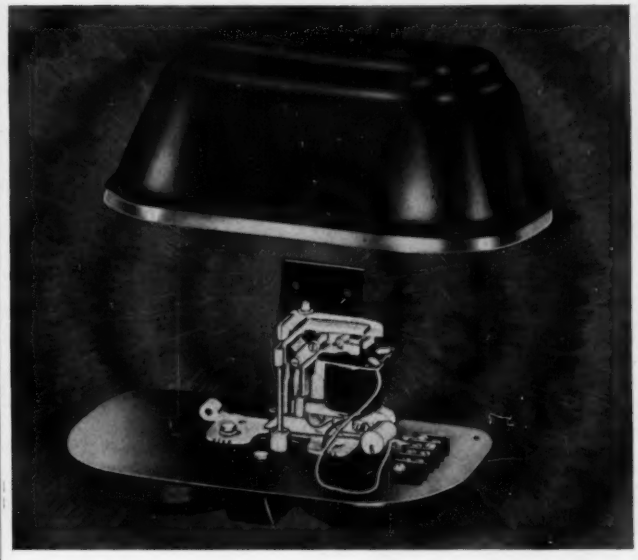
In concluding his remarks, speaking for the General Telephone Co. of the Northwest, Barran said, ". . . we switched from the standard USITA cents-per-message type of settlement to the cost basis in June of 1947. I might say that these individual cost studies are not simple. It took us a couple of tries before we had a study that both we and the Bell associated company felt was reasonable and reliable enough on which to base a new contract.

"However, once you have mastered the art of making these studies, it becomes more or less routine unless you

KELLOGG

LOUD RINGING BELL

commands attention anywhere!



Ideal for any noisy or exposed location: factories, foundries, mills, taxi stands, school yards, docks, construction sites, police or fire alarms.

- **Compatible** with all types of circuits, including impedance ringers.
- **Weather-proof,** rugged construction.
- **Easy to mount:** requires only two screws.
- **Available** in harmonic, synchromonic, decimonic ringing frequencies – or imposed straight-line ringers.

Ask your Kellogg sales representative for complete information.

KELLOGG Communications Division of ITT
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue Chicago 38, Ill. Communications division of International Telephone and Telegraph Corporation

For a complete list of Kellogg offices, see pages 6-7.

"BEST"

for keeping that new look on your telephone instruments—black and colored.

NEW General Telephone Cleaner

After two years of hard work by our chemists, this product has been perfected. It will remove all stains from the new plastic telephones . . . does not affect the cases in any way . . . is non-caustic, non-corrosive and non-inflammable . . . will not injure hands using it . . . makes cases look like new

An Ideal Pair

New General Telephone Cleaner coupled with Magnolia Glayz-It Telephone Refinisher have been demonstrated in over 60 exchanges with the result: orders placed promptly. Care to place yours now?

MAGNOLIA CHEMICAL CO., INC.
Chicago • Lafayette • Indiana
Atlanta • Dallas • Los Angeles

Distributed by

LEICH SALES CORP.
427 West Randolph Street
Chicago 6, Ill. RAndolph 6-5441

are not satisfied with the agreement you have and decide to cancel the contract as we did last year."

Mr. Barran made a second appearance before Alaska's Independents and guests when he spoke at the annual banquet. Title of this address was "The Eternal Triangle," which is being published in TELEPHONY in this issue. Claire O. Banks of the Anchorage Chamber of Commerce served as toastmaster for the occasion.

Closed executive sessions of the Alaska Telephone Association were devoted to two subjects, the formation of a public utility commission in Alaska; and the part operating telephone companies could play in the formation of the commission and in assisting the forthcoming legislature.

Considerable round table discussion centered on the present toll settlements with the Alaska Communications System, and the membership voted to have a statewide toll study made of each company.

Other features provided for the conventionites included an open forum entitled "Uncollectibles," which was under the leadership of H. L. Lauderdale, collector of the Anchorage city office of Clerk-Treasurer; manufacturer exhibits and displays; a tour of the Alaska Communications System toll center on Government Hill; and a tour of local Anchorage telephone exchanges.

Elected to fill the unexpired term of vice president was Robert M. Clements of Palmer.

Other officers to complete their two-year terms are: President, H. R. Zinns, of Anchorage; Mrs. Martha P. Cushing, secretary-treasurer, of Sitka; directors, Owen E. Meals, of Valdez; Lester L. Glascoe, of Fairbanks; and Mrs. Verna Carrigan, of Juneau; and Richard J. Cushing, of Sitka.

WHEATSTONE BRIDGE

Continued from page 36

mit the entire current used in making bridge measurements to flow through the galvanometer, part of the current is shunted around the movable coil. This shunt bears a definite relation to the movable coil resistance, being generally adjusted to 1/9, 1/99, or 1/999 of its resistance, so that only 1/10, 1/100, or 1/1000 part of the current passes through the movable coil.

The Wheatstone Bridge operating battery usually consists of dry cells having an EMF of 4.5 to 100 volts, or more, and, as a protection to the bridge circuit elements, the maximum amount of current allowed to flow in the bridge circuit should be limited to 100 milliamperes. This is accomplished by connecting a resistor in series between the battery and the bridge. The required value of this resistor may be determined by the formula: $R = 10 \times E$, where "R" is the amount of the resistance to be inserted in series with

Recent happy occasion honoring two General Telephone Co. of California employes as La Croix Award winners, celebrated at the Santa Ynez Inn in Pacific Palisades, is pictured here. Left to right, the principals are: Mrs. John T. Howell, of Santa Paula; Mr. Howell, who received silver medal and $1,000 cash for heroism in saving life of neighbor whose clothing was on fire; General's President, Leroy E. Lattin, of Santa Monica, who made the presentations; Howard McCoy of Manhattan Beach, winner of bronze medal and $250, for helping to save woman's life by artificial respiration; and Mrs. McCoy.

the battery, "E" the battery voltage, and "10" the multiplying factor to obtain the limited current flow. This multiplying factor is obtained from the rule to insert at least 10 ohms resistance for each volt of EMF used.

Suppose a battery of 100 volts is used, then R = 10 × E or 10 × 100 = 1,000 ohms. Although the insertion of the 1,000 ohms resistor in series with the battery will not affect balancing the bridge, it will affect the sensitivity of the galvanometer needle movement to a slight degree. This is due to the decrease in the total current flowing from the battery, but it is of no consequence comparable to protecting the bridge from excess current.

The operation of the Wheatstone Bridge is dependent upon the following principles: The passage of an electric current through a circuit is attended by a fall of potential (voltage drop) on the circuit, proportional to its resistance.

Consequently, if the bridge ratio arm resistors "A" and "B," and the rheostat "R" resistances, are so proportioned to the value of the unknown resistance "X," that the voltage drop is such that no current passes through the galvanometer "G" placed in the bridge circuit, as shown in *Fig. 1*, then it can be demonstrated that the resistor "B" is to the rheostat resistance "R," as the resistor "A" is to the unknown resistance "X." In other words, the value of the resistance "X" is equal to the value of the resistor "A," divided by the resistor "B," and multiplied by the resistance "R," according the Wheatstone Bridge formula: X = (A ÷ B) × R.

A convenient feature of the bridge circuit, shown in *Fig. 1*, is that the rheostat "R" may be used as a simple variable resistance by merely placing it in series with an external circuit connected between the "X2" and "P" binding post. With this condition the ratio dial, galvanometer, galvanometer shunt keys and bridge battery are not required.

(To Be Continued)

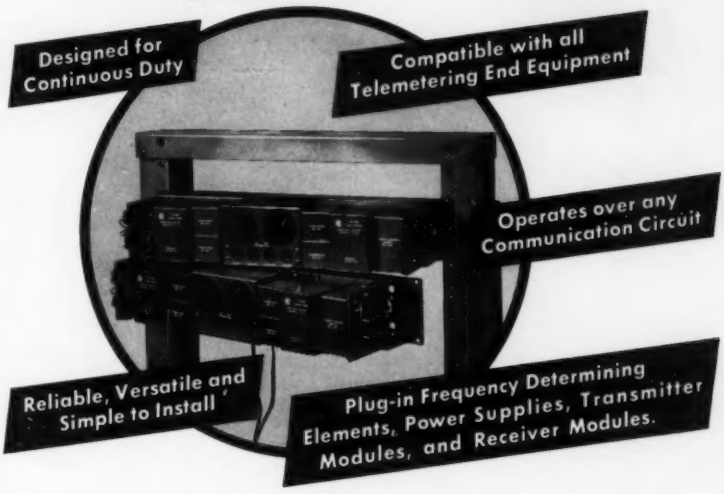
Only the Free Build

"There have been, at various times and in various countries, periods which saw a great outpouring of achievement with an extraordinary number of superior men to leave the stamp of genius upon the pages of history. In each of these Golden Ages, for a time, some phenomenal fertility was induced into the soil of accomplishment. And diverse as were the conditions, there is one common element: the intellectual freedom essential to the creative process."—CRAWFORD H. GREENEWALT, *Human Achievement and the Free Society.*

REMOTE INSTRUMENTATION & CONTROL

U.S. PAT. 2,844,720

Comtel® Transistorized Modular Terminal Units for TELEMETERING and CONTROL APPLICATIONS


Designed for Continuous Duty
Compatible with all Telemetering End Equipment
Operates over any Communication Circuit
Reliable, Versatile and Simple to Install
Plug-in Frequency Determining Elements, Power Supplies, Transmitter Modules, and Receiver Modules.

The Model 1220 and 1220A Carrier Terminals are completely transistorized and may be operated from station batteries from 12 to 130 DC. Plug-in power supply is available for 115-volt AC operation. All components, including amplifiers, frequency determining components, and power supplies are contained in plug-in modules, and may be readily interchanged. As many as 22 high-speed channels are available between 300 to 3000 cps.

MODEL 1220

The Model 1220 Terminals are normally used in telegraph applications and provide all necessary carrier and loop jack fields, as well as loop current controls. Two transmitters, two receivers, or a transmitter receiver are available on a single 5¼" x 19" chassis.

MODEL 1220A

The Model 1220A Terminals are normally used in telemetering and control applications. The individual modules are mounted on a swing-out chassis and are readily accessible. Four transmitters, four receivers, or two transmitter receivers are available on a single 3½" x 19" chassis.

SEND FOR TECH. DATA

For additional information, including application data, write or phone DE 4-3100. Demonstrations available by local representatives.

WE CAN HELP YOU — Our Applications Department is ready to assist you in your control, telemetering or communications problem.

Radio Frequency LABORATORIES, INC. Boonton, New Jersey, U.S.A.

FOR EVERYTHING YOU NEED

Kellogg is close by with fast, dependable

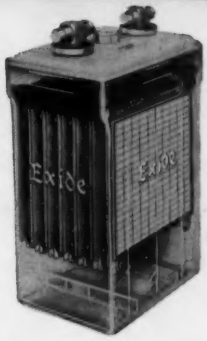
Nuts, bolts, cable, terminals, batteries... you'll find everything it takes to run a telephone company under one roof at Kellogg. Eight completely stocked, conveniently located warehouses are only a phone call away. And when you call Kellogg you're talking with trained, experienced telephone men who understand your needs, know exactly what you require. For telephony's most complete source of dependable equipment, such as shown on these pages, and fast, efficient service... call your Kellogg representative.

KELLOGG
Communications Division of
CHICAGO, ILLINOIS
IT&T

Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of
International Telephone and Telegraph Corporation

Fine Telephone Poles. Dierks Pressure-Treated Southern Pine Telephone Poles, up to 110 feet. Creosote or Penta treatment. Prompt shipment out of stock. DIERKS FORESTS, INC.

Self-Contained Unit—The 3-phase Fiotrol Automatic Constant Voltage Battery Charger has no moving parts—all components in one cabinet. No separate units to install. Designed for plants requiring 25 to 400 amps charging capacity.
LORAIN PRODUCTS CORPORATION.



The Battery That Stays Young for Years. Reserve lead in the Exide-Manchex positive plate converts automatically to active material as needed. Hence battery keeps its full capacity for years. Patented Silvium grid resists corrosion—prolongs battery life. Exide Industrial Division, THE ELECTRIC STORAGE BATTERY COMPANY.

Cook Battery Charger—furnished in 12 amp. 1-phase, 24 amp. 1-phase, and 25 amp. 3-phase models. Sturdy steel cabinets; all designed for long trouble-free service. COOK ELECTRIC COMPANY.

MoPeCo propane tent heaters give fast dependable heat to splicers working aerial cable in cold, wet and windy weather. Two sizes—8,000 or 12,000 BTU • 50 hr. maximum output, 20 lb. tank • Two 4-ft. adjustable chains • Low pressure regulator • 30-ft. L.P. gas hose • Weight: 9 pounds • Size: 10" diameter x 14" high. MORRISON-PELSUE COMPANY.

UNBREAKABLE METAL THERMOMETER—The Dillon Temperometer registers correct temperature of paraffin, compounds, wiping solder, impregnation wax, cable damming waxes. Rugged, lightweight, with large easy-to-read dial. Stops guesswork in heating cable materials. Range: 200-1000°F. W. C. DILLON & CO., INC.

..EVERY DAY...Call KELLOGG

complete service

Regional Offices and Warehouses:

CALIFORNIA:
23 Broderick Road, Burlingame, Calif., OXford 7-5780.

GEORGIA:
1594 Southland Circle, N. W., Atlanta 18, Ga., SYcamore 4-2441.

ILLINOIS:
4600 So. Tripp Ave. Chicago 22, Illinois, CLiffside 4-4300.

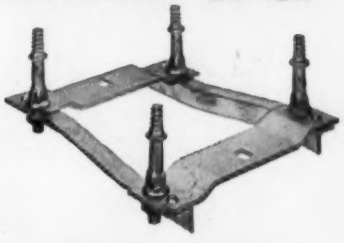
KANSAS:
7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.

NEW YORK:
327 North West Street, Syracuse, N. Y., HArrison 2-9251.

TEXAS:
1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.

EXPORT:
257 Prospect Street, Passaic, N. J., PRescott 3-5100.

Save Three Ways . . . on materials, manhours, and maintenance with INDIANA STEEL & WIRE CO.'s Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing Process, protected with heavy ductile coating of zinc.



REINFORCED HEAVY DUTY 4-POINT TRANSPOSITION BRACKET—Joslyn J8130K and J8132K Transposition Brackets are for 10" and 12" wire spacings respectively, left-over-right transposition and are approved by REA as Item P-mc. These Brackets are designed to take #H-23 Glass Insulators fitted with J7084 Plastic Bushings. JOSLYN MFG. & SUPPLY CO.

Boston University Sets Alexander G. Bell Lectures

Secretary of Labor James P. Mitchell was scheduled to deliver the first Alexander Graham Bell Lecture at Boston University on Thursday, Nov. 12.

This new public lecture series is to be given annually during the university's alumni homecoming week which this year was scheduled between November 8 and 15. With a general theme of "Man's Communication to Man," the Alexander Graham Bell lectures will honor the inventor of the telephone who was listed on faculty rolls as professor of vocal physiology at Boston University from 1873 to 1879, the period when the major experimentation that resulted in the telephone was accomplished.

In making the announcement, Boston University President Harold C. Case declared that Professor Bell's association with the university's faculty "involved the six most important years of his life."

He added:

"Not only did Dr. Bell invent the telephone during this period, but the university, under the administration of President William Fairfield Warren, had the happy circumstance of being able to advance him a full year's salary and a leave of absence from teaching duties at a time of crisis in Professor Bell's personal financial affairs.

"Years later he remarked that this action by Boston University had made it possible for him to devote the time necessary for his extraordinary scientific inquiry.

"It might be added also that nothing gives Boston University more satisfaction than Professor Bell's own words at a reception tendered to him by the University in 1916. He said, '. . . . It was while I was connected with the school that all the work was done on the telephone.'

"Beyond his service at Boston University, we have always been proud of the many other humanitarian and scientific accomplishments of Professor Bell in cognate fields, incldluing his explorations into problems of flight, animal husbandry, and other scientific studies in communications, as well as his pioneer association with the National Geographic Society, the Smithsonian Institute and similar important groups.

"It is fitting that Boston University should honor his memory each year with the Alexander Graham Bell homecoming lecture. The significance of this series is indicated by the stature of the first Alexander Graham Bell lecturer, Secretary Mitchell."

In a paper read in 1877 before the Society of Telegraph Enginers, Dr. Bell described one of his university experiments, as follows:

"I remember an experiment made with this telephone which at the time gave me great satisfaction and delight. One of the telephones was placed in my lecture-room at the Boston University and the other in the basement of the adjoining building. One of my students repaired to the distant telephone to observe the effects of articulate speech, while I uttered the sentence, 'do you understand what I say?' into the telephone placed in the lecture hall.

"To my delight an answer was returned through the instrument itself, articulate sounds proceeded from the steel spring attached to the membrane, and I heard the sentence, 'Yes, I understand you perfectly.' It is a mistake, however, to suppose that the articulation was by any means perfect, and expectancy no doubt had a great deal to do with my recognition of the sentence; still, the articulation was there, and I recognized the fact that the indistinctness was entirely due to the imperfection of the instrument."

Actually, the first conversation over the telephone in a foreign tongue was conducted in Dr. Bell's classroom when a Japanese student, to whom the Professor was giving speech training and who later became the Japanese minister of education in Formosa, picked up

How can you cut down on telephone pole maintenance?

String your lines with

USS Tiger Brand Amertel 195.

When you use Amertel 195 to string your rural telephone lines, you get a real bonus. Much longer spans are possible—up to 700 feet. Fewer poles are needed; reducing the time and expense of pole maintenance per mile of line.

Amertel 195 has other important advantages too:

- Longer spans, fewer poles, means lower installation costs.
- Rivers, gullies, valleys, can be strung easily and economically.
- Amertel 195 withstands severe weather conditions, reducing service interruptions. It resists breakage even under heavy ice loads.
- The extra low resistivity of this quality wire assures improved voice transmission efficiency even at relatively high frequencies.

More information is given in our new booklet. For your copy, write to American Steel & Wire, Dept. 9186, 614 Superior Ave., N. W., Cleveland 13, Ohio. *USS, Tiger Brand and Amertel are trademarks*

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

the instrument and asked "Will this thing talk Japanese?" It soon proved that it could.

Dr. Bell's presence at Boston University also resulted in the beginning of the practice of exchange of professorships between European and American universities, for in 1878 Oxford University invited him to deliver a series of lectures there.

IN THE NATION'S CAPITAL

Continued from page 20

chusetts) where a five-man setup is favored.

But both the state and federal commissions are independent. That is to say that, once appointed or elected, their members are free to make their own rules and decide their own cases without dictation or interference from other branches of the government — legislative, executive, or judicial. True, each branch within its *own* sphere can function with respect to the commissions. The legislature can change the law; the executive can appoint; the court may review appeals. But none are supposed to interfere with *specific* cases, while they are before the commissions, or attempt to influence regulatory decisions in such cases.

The recent agitation to turn over all or part of the regulatory authority to administrative or judicial branches of the government would change all this radically. It would abolish the commission, in whole or in part, and place regulated utilities directly under the far more politically sensitive control of an elected administration. And if this pattern were once set up for the federal government, it would be sure to be copied sooner or later by some of the states.

"Utopian" Regulation

FTC Chairman Kintner, on Nov. 5, attacked what he called "utopian" and "technocrat" proposals to change the system of regulating commerce through government agencies. Kintner made known his position in a speech before the Anti-trust Section of the Illinois State Bar Association. He hit suggestions that regulatory agencies are badly in need of a major overhaul. He specifically condemned the proposal made by Louis J. Hector, who recently resigned from the Civil Aeronautics Board (CAB). Hector, after leaving, submitted a long report to the White House, charging some regulatory agencies have become almost incapable of doing their jobs.

Hector had said that not even the "Founding Fathers" could make the CAB operate well and had recommended the board be abandoned, with its functions going to other agencies. The chief job of the CAB is approval of airline routes and rates. The FTC head defended the present regulatory system and added that attempts should be made to improve it before it is replaced by "untested utopian alternatives."

Attorney General Rogers has suggested a "searching reappraisal" of some of the basic thinking on which the regulatory agencies operate. Chairman Kintner said "radical major surgery is not called for when a simple dose of medicine can effect a cure." Chairman Kintner denied the claim, made by Hector, that there is poor co-ordination in the regulatory process. He said the FTC and the Justice Department have good co-ordination in anti-trust matters and that any "independent agency can exploit means of co-ordination on its own initiative."

Hector's contention that regulatory commissioners frequently are unfamil-

Presenting now the

New and Improved Murphy Silent Buzzer

Models SBT-2 and SBR-2 (all sets shipped after June 1, 1959)

FOR 2-MAN TESTING TO IDENTIFY CABLE PAIRS IN NEW OR WORKING CABLES—WITHOUT INTERFERENCE—EVEN ON BUSY LINES

SBT-2

SBR-2

- Eliminates monitoring for busy lines
- Never disturbs any line
- Super-heterodyne circuit, battery powered
- Faster testing to identify pairs
- Loud clear two-tone signal to splicer and helper
- Compact and light, 3x4x5 inches

1. Increased power for the Transmitter for the longest loaded cables—without interference
2. Increased Receiver sensitivity—now 7 transistors—for efficient pick-up with the capacity probe
3. Smoother and less critical volume control, no overloading of early stages on shorter cable runs
4. Spare probe tip holder moved to the top of each case instead of attaching to the cord plugs
5. Improved capacity probe, 10 times greater pick-up, can be "hooked" onto proper pair with one hand and pair moved and held away from other pairs for positive identification
6. Two slide switches have been replaced by a single rotary switch, for simpler and more dependable operation
7. Instructions included for a simple connection on the Receiver to convert it to a source of low frequency tone—so that the splicer can pick out a spare pair for a talking pair and the helper can locate it in the central office with a monitoring set
8. A convenient and durable carrying case is now available for carrying the silent buzzer, all cords, batteries, the Field Test Board and the Speed Tester for maximum protection during storage and transportation
9. In use on a busy line, neither the splicer nor helper can hear any part of the subscriber's conversation
10. Transmitter uses only 5 ma from a 4½ V battery. Receiver uses only 6 ma from a 4½ V battery, or a total for both of only 49.5 milliwatts—from low cost batteries.

Net price $194.00 per pair—f.o.b. Houston, Texas.
Shipping schedule—90 days. Write for additional information on this and other telephone test equipment manufactured by

ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE

MURPHY ENGINEERING LABORATORIES, Inc.

4419 Tulsa — Houston 24, Texas

iar with the record in cases before them, and that their decisions do not follow known standards, was also answered by Kintner. He said that to adhere to set rules instead of developing principles on a case-by-case basis is contrary to American law.

One other danger, in overhauling regulatory statutes on a less drastic plan than proposed by Hector has been brought out by the current television quiz scandals. That is the danger of using broad "public interest clauses" which might give the commissions power almost to examine the consciences of the regulated companies. The FTC has already indicated that it is taking a second look at its general power to prohibit deceptive advertising in the interest of fair competition. The commission's position heretofore has been that it had no authority to enforce ethical conduct, per se, for activities not directly affecting fair competition.

So far, the Federal Communications Commission (FCC) has taken the position that it has no authority, under the Communications Act, to interfere with programs which are not expressly forbidden (such as the prohibition against obscene or gambling programs). There are a number of members in Congress who feel that both the FTC and the FCC, and perhaps other regulatory authorities as well, have reserved powers under regulatory statutes to enforce ethical conduct. One stumbling block for the FCC is the provision of the present law which forbids the FCC to exercise any power of censorship.

The real puzzle for lawmakers and regulators alike is the problem of framing a statutory "public interest clause" which would not, on one hand, be so broad and vague as to be meaningless, and, at the same time, not give regulatory commissions concealed powers to interfere with the management of regulated industries under the guise of enforcing ethical conduct. A somewhat parallel question was recently raised in connection with the authority of the Federal Power Commission to exclude from the operating expense accounts of electric companies the cost of advertising for alleged political propaganda. General public interest clauses in regulatory commission statutes would tend to extend such interference with managerial discretion. Too much broad power concentrated in a commission could be far worse than not enough.

Join the Neverettes?

Not all screwballs hang around Washington, D. C. But it is a safe bet that our grand old nation's capital gets its full share of them. One day last week a rather persuasive aggressive type called this writer on the telephone to discuss what he claimed was a brand, new idea "with money-making possibilities." Since "yours truly" happens to write for TELEPHONY, this Rover Boy thought "FXW" would be a "natural" to plug the new brain child. (He should live so long!)

Boiled down to a couple of thousand words, this character wanted to start a new organization, known as the "Neverettes." And just what, precisely, are the "Neverettes?" It is a coined word (registration pending) which results from the contraction and initials in this sentence: "Never Respond to Telephone Solicitation." The genesis of this earth-shaking inspiration was the increasing number of complaints, seen in the "Letter-to-the-Editor" column of any large daily newspaper, griping about people who call up perfect strangers on the telephone and solicit for various things, ranging from charity-racket tickets to phony stock sales.

People who have been swindled, or simply annoyed, naturally feel strongly about this. They often propose drastic remedies, usually starting off with "There ought to be a law—!" Admittedly, such laws would be silly, impossible to enforce, and embarrassing to telephone companies. So what? Our genius promoter had the problem all solved. Claims it is tactful, polite, painless, and final. All you have to do is join the "Neverettes"—for a nominal membership fee ($1.00, including a handsome certificate). This entitles you to tell the next chump who calls you on the telephone with a weird proposition, "Sorry, I'm a Neverette!" Widespread, general recognition and popular acceptance of this term is supposed to convince the chump that his call is fruitless; and he thereupon hangs up and crosses you off his sucker list forever.

Nice trick if it works. But how did my screwball friend propose to promote this marvelous idea? Why, by a *telephone solicitation campaign!* What else? Your weary correspondent simply replied, "Sorry, I'm a Neverette"; and hung up forthwith. There *really* ought to be a law, etc.

Strehl Retires After 50 Years In Industry

W. C. Strehl has announced his retirement from the Buckeye Telephone & Supply Co. of Columbus, Ohio, after 50 years of service in the telephone industry.

Prior to his association with the Buckeye company, Mr. Strehl was with

ENGINEERS

New Facts about the Openings and Potential at—

ADVANCED COMMUNICATIONS ENGINEERING

TELEPHONE ENGINEERS: Immediate openings as field engineering supervisor for telephone outside plant and inside plant engineers. 10 years of broad industry background. With some direct field experience desirable.

To arrange for a Confidential interview, please send resume to:
MR. H. J. RECKAS, *Personnel Manager*

ADVANCED COMMUNICATIONS ENGINEERING
A Division of Cook Electric
6038 Twenty-Eighth Avenue, S.E., WASHINGTON 23, D. C.

Cook Electric Co. of Chicago. For 22 years before joining Cook, he was with the Suttle Equipment Co. of Lawrenceville, Ill.

Taylor-Colquitt Names Two Area Sales Managers

Taylor-Colquitt Co. of Spartanburg, S. C., has announced that effective Nov. 1, Henry D. Packard, formerly sales representative in the East, has been appointed eastern sales manager. He will be in charge of the company's New York office which is located at 150 Broadway, New York 38, N. Y.

The company also announced that Thomas A. Moore, who has been a sales representative based in Spartanburg, has been named district sales manager and will be in charge of the Spartanburg and Wilmington, N. C., sales offices.

New Panhandle Building Houses Sales, Manufacturing

Erection of the new general sales office and manufacturing facilities of Panhandle Electric Sales, Inc., was completed on Oct. 1. The new building is located at 1610 Industrial Court, Arlington, Tex.

L. Q. Krasin, president of Panhandle, in outlining the company's 10th anniversary plans, stated that the new building provides 10,000 feet of air-conditioned general office and manufacturing space.

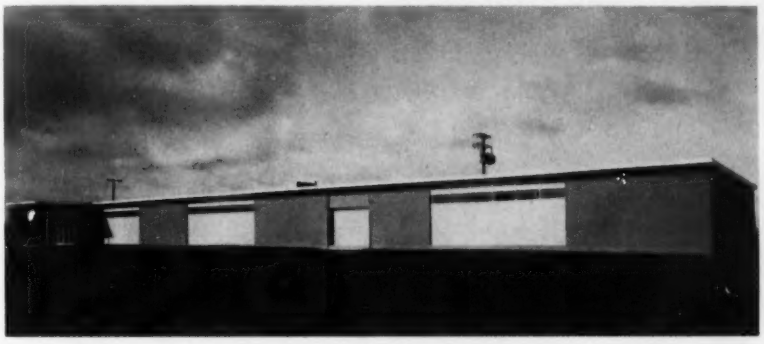
The general sales office was moved as soon as the building was completed. Manufacture of the company's transistorized type "X" cable carrier and type "LL" open wire carrier will be immediately transferred to the new facilities.

The manufacture of FM subscriber carrier will be moved from their present plant, in Amarillo, Tex., at a later date.

The new manufacturing facilities incorporate the latest in plant design with space for development laboratories, a model shop, filter assembly and testing, component assembly, final system testing, production control offices, shipping and receiving, and storage sections.

The office area provides for general sales, accounting, system application engineering, customer service and administrative facilities.

Panhandle invites the public to inspect the new building.



New building erected by the Panhandle Electric Sales, Inc. at Arlington, Tex., houses general sales office and manufacturing facilities.

PROVED
BEST for shopping centers

the BN Booth

attracts revenue with its colorful, clean appearance ... retains profits with sturdy maintenance-free construction.

The BN Booth is best for you, too!

For full particulars, consult your distributor or write direct for folder... Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.

a B-N booth is a busy booth!

New Irwin Pole-Bor Bit

gives non-stop boring

No stopping to clear chips, not even in creosoted poles

Now get easier, faster, non-stop boring action in telephone and power poles with the new Irwin 415T Pole-Bor bit. Chip flow is continuous. Special Irwin cutting head, twist angle, and smooth-polished hollows eliminate clogging and binding — even when boring clean through creosoted poles. Spur on head outlines hole ahead of cutting edge. Side lip then smooths hole, making it easier to insert bolts or pins.

And Irwin's exclusive and patented Adapter Shank chucks perfectly in both hand braces and electric drills to cut inventory costs by 50%, speed work on the job. All Irwin Pole-Bor bits are made of special high analysis steel, heat treated full length and machine sharpened for extra accuracy, longer life. Save time, save money. Order from your Irwin distributor.

Overall Length: Approximately 18", with 12" twist, 6" shank
12 Sizes: 5/16" to 1 1/16"

Irwin Adapter Shank fits both hand braces and electric drills

Comes like this with taper square shank for use in hand braces.

Cut off taper square shank. Use in both hand braces and electric drills. No wobble, no run-out.

IRWIN Wilmington, Ohio

every bit as good as the name

Helpful Literature

MASONRY ANCHORING HANDBOOK—A revised, enlarged edition of its "Masonry Anchoring Handbook" has been issued by The Rawlplug Co., Inc. The 48-page, pocket size publication was prepared with engineers, architects, and users of masonry anchors and drills in mind.

The handbook includes tables that show the proper anchors to be used with each type of fixture and material. Anchoring and the care and use of masonry drills are also described and pictured.

Dimensions and specifications are given for each type of anchor and drill, and sections have been added on Rawlplug's "Saber-Tooth" self-drilling masonry anchor and other new products.

An index in the handbook simplifies looking up desired information. Request HL531.

•

CROSSARM STORAGE POSTER—A two-color poster illustrating the recommended method for stacking crossarms is now offered free of charge by the West Coast Crossarm Association.

Intended for display in storage areas, the poster illustrates the stacking method, which is said to insure crossarms a normal, long life by preventing damaging accumulation of moisture.

Employes, the Association says, should learn from the poster that:

Deterioration of wood is caused by the growth of fungi on and in the wood—not by age.

Wood is food for fungi only when it contains 20 per cent or more of its own weight in water.

Fir crossarms are shipped either kiln dried or air-seasoned, to average moisture content of 12 per cent to 20 per cent. Proper storage, as illustrated, will insure their normal long life. Request HL532.

•

HIGH-CAPACITY ELECTRIC PLANTS—Onan & Sons' line of high-capacity electric generating plants is described and illustrated in their 1960 general catalog, recently released.

Catalog F-146 is an attractive two-color, eight-page folder listing more than 45 basic models of Onan gasoline and Diesel engine-driven generator sets.

Each series of plants is described in detail, with specifications for both engine and generator given to make it comparatively simple for the reader to select the proper type of generating plant for his particular needs.

A chart of representative models in each series outlines such details as capacity of the plant, model number, voltage, starting method, dimensions and weight.

In addition to the standard line of Onan products, the company's new high-capacity gasoline and Diesel engine-driven generating plants are listed for the first time. Ranging up to 170,000 watts (gasoline) and 230,000 watts (Diesel), these plants are highly recommended for dependable standby

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

HL531_____; **HL532**_____; **HL533**_____; **HL534**_____;

HL535_____; **HL536**_____; **HL537**_____.

Company.....

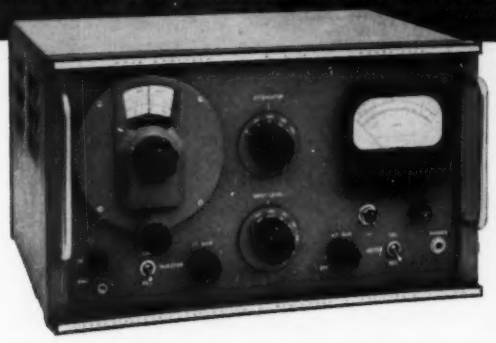
Street.....

Town and State.....

11/14/59

Fast, convenient, dependable precision wave analyzers

for wave analysis, wire carrier and microwave subcarrier measurements



Sierra 121A Wave Analyzer is a double superheterodyne receiver covering 15 KC to 500 KC. It provides data directly in volts and dbm at 600 ohms, and offers high selectivity required for single sideband carrier measurements.

Sierra 158A Wave Analyzer is similar to Model 121A but covers 500 KC to 10 MC.

Both instruments have ±2 db accuracy, spurious response at least 50 db down, and signal measurement range of 77.5 μv to 97.5 volts. Available for either cabinet or relay rack mounting.

Frequency-selective carrier-frequency voltmeters

For carrier frequency and other field or laboratory work between 3 KC and 800 KC, Sierra offers five accurate, stable tuned vacuum tube voltmeters. All are direct reading in voltage and dbm at 600 ohms from —80 dbm to +42 dbm. All feature built-in calibration oscillators, level calibration circuits, aural monitoring jacks, and (except 103B) precision spiral scale dials. All are ruggedly constructed of quality components for long operating dependability.

SPECIFICATIONS — SIERRA VOLTMETERS

Model	Frequency Range—kc	Selectivity		Accuracy		Direct Reading in dbm	
		Down 3db	Down 45db	Frequency	Measuring	Balanced	Unbalanced
101C	20-500	± 550 cps	± 2900 cps	Note A	± 3 db	Note D	600 ohms
103B†	3- 40	± 400 cps	± 3000 cps	± 0.5 kc	± 3 db	Note D	600 ohms
104A	5-150	± 300 cps	± 1500 cps	± 1 kc	± 3 db	Note D	600 ohms
108B	15-500	± 550 cps	± 2900 cps	± 3 kc Note B	± 2 db Note C	135 ohms Note D	600 ohms
114A	100-800	± 550 cps	± 2900 cps	Note A	± 3 db	Note D	600 ohms

† Contains carrier re-insertion oscillator for monitoring suppressed carrier systems. Furnished with planetary drive dial. Note A. Ranges from ± 2 KC at low end of dial to ± 3 KC at upper end. Note B. ± 1 KC in the 48 KC to 256 KC region. Note C. ± 1 db for + 30 db to —40 db attenuator steps on 135 ohm balanced measurements. Note D. All models may be converted for 135 and 600 ohm balanced line measurements by convenient plug-in bridging transformer, Model 130D.

Data subject to change without notice.

Sierra Electronic Corporation

A Division of Philco Corporation

4694T Bohannon Drive • DAvenport 6-2060

Menlo Park, California, U.S.A.

Sales representatives in Major Cities

Canada: Atlas Radio Corporation, Ltd., Toronto, Montreal, Vancouver, Winnipeg

Export: Frazar & Hansen, Ltd., San Francisco, New York, Los Angeles

PRESSURIZED CABLE SYSTEMS

The need for an automatic device to stand guard at intervals along pressurized cables has long been recognized. Now United Electric Controls has the answer . . . The Telephone Cable PRESSURE-GUARD.

Developed by U.E., in collaboration with the Bell System, the PRESSURE-GUARD is now available to all Telephone Companies as an aid in reducing cable maintenance costs.

In the past the location of a cable leak was a matter of man hours in climbing poles and manually checking pressure points. When the pressure guard detects a pressure drop it introduces an electrical resistance . . . which indicates at a central monitoring source a cable leak and the location.

Specifications Pressure-Guard

Field Adjustment Range	0 to 15 PSI
Factory Setting	2 ±¼ PSI on falling pressure
Pressure Response	4 ±½ oz.
Proof Pressure	30 PSI
Electric Rating	0.01 amp 110V DC
Load Resistor	Carbon composition 330,000 OHM 1 watt
Take-Off Tube	Tinned Copper 6′ x ¼″ x 0.035
Drop Wire	6′ Type SJ0 #18 stranded 0.2 conductor
Size	6″ x 4½″ x 2½″
Approximate Weight	1¾ lbs.

These specifications may be modified in a great variety of ways to meet the requirements of any given application.

UNITED ELECTRIC *manufactures a complete line of temperature, pressure, and vacuum controls. For applications requiring custom-built units or modified standard units, call upon a UE application engineer for recommendations. Write for complete specification and pricing data on the Telephone Cable Pressure-Guard. Similar data available on all other UE controls.*

United Electric Controls COMPANY

85 SCHOOL STREET, WATERTOWN, MASS

PENTA POLES

PENTA treated top-to-butt for years of added pole-line service resulting in far less per annum costs. Dependable service by a company who has been serving telephone companies for more than 50 years.

PAGE & HILL, inc.

MINNEAPOLIS 3, MINNESOTA

service in hospitals and industries whose essential electrical requirements are substantial.

Optional accessories for each series of generating plants are also illustrated. Request HL533.

•

SERVICE BODY BROCHURE—Dimensional and compartmentation data, optional equipment, design and engineering features of Holan Corp.'s Series 5100 General Service Bodies are illustrated in detail in a new brochure recently announced.

The general service bodies, built for ½- to 1½-ton truck chassis, are of high tensile steel. Selection of optional equipment makes possible adaptation of the basic body to a number of uses in the communications, electric power, gas and railroad industries. Request HL534.

•

CABLE TEST EQUIPMENT—A new catalog of their line of cable test equipment has been issued by the Murphy Engineering Laboratories, Inc.

Information on six items, together with dimensions, usage, how to order, and general data under the title of Educational Material is included.

The six items featured by Murphy are:

(1) The Silent Buzzer.
(2) The Automatic Working Cable Tester.
(3) The Omni-Tag Board.
(4) The Pocket Bridge.
(5) The Field Test Board.
(6) The Speed Tester.

The catalog also includes a section devoted to test probe tips for the Silent Buzzer. Request HL535.

•

MICROWAVE SERVICE CHANNEL—General Electric Communication Products Department has issued Bulletin ECM 112 describing transistorized service channel equipment now available for 6KMC microwave.

The new equipment simplifies servicing of a microwave system, the company states, and aids technicians engaged in preventative maintenance. Request HL536.

•

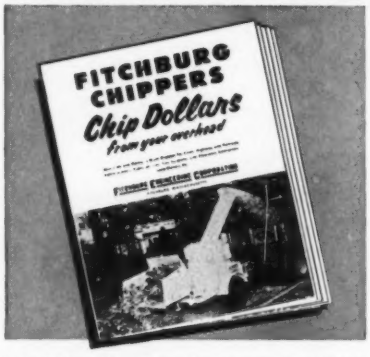
RIGID ALUMINUM AND RIGID COPPER COAXIAL TRANSMISSION LINES AND ACCESSORIES—Prodelin, Inc., manufacturers of microwave antennas and transmission lines, announce the availability of their new catalog No. 595, showing the company's entire Series "800" rigid copper and rigid aluminum coaxial transmission line and accessories.

The new catalog format eliminates cross reference reading from section to section and shows all pertinent data on each item adjacent to a photo and dimensioned line drawing of the item itself. The new Prodelin rigid coaxial transmission lines and components are produced in accordance with EIA Standard RS 225.

Featured in the catalog are 50 ohm rigid copper coaxial transmission line in ⅞-inch, 1⅝-inch, 3⅛-inch, and 6⅛-inch sizes; 50 ohm rigid aluminum coaxial transmission line in 1⅝, 3⅛, and 6⅛-inch sizes; and a special rigid aluminum coaxial transmission line using the new Prodelin Spir-O-lok connector, a Prodelin development that the company says enables connections to be made without brazing and allows exceptionally rapid field assembly. This special line is available in 1⅝, 3⅛, 4⅛, 6⅛ and 9-inch sizes. Accessories and supporting hardware for all lines are illustrated and described.

Dimensions are given for the Spir-O-lok connectors and EIA connectors in all sizes. In addition to the above, the catalog features six pages of engineering data and performance curves. Also listed are typical dehydration systems installations. Request HL537.

HOW TO SAVE MONEY IN BRUSH DISPOSAL



Read how foresters, tree surgeons, highway and park commissions, telephone, power and gas companies cut brush disposal costs up to 50% with a Fitchburg Chipper.

See cut-away color drawings of the Fitchburg Chipper—the exclusive Fitchburg spring-activated feed plate—pictures of different models in action.

FREE — Write for your copy of "Chip Dollars from Your Overhead." Address Dept. T-119.

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

Leich Appoints Representative And Sales Engineer

D. C. Gibson, president, on Oct. 26 announced the appointment of Charles A. Ross as Leich's new representative in Florida and Georgia. He succeeds Gene Martin who will now devote his full time to his duties as manager of Leich's Tampa, Fla., warehouse.

C. A. ROSS

Mr. Ross has been employed at Leich's Tampa warehouse for some time. At the time of his promotion, he was assistant warehouse manager.

He was born and raised in Georgia, and attended the University of Florida at Gainesville.

K. H. WITTFOTH

Mr. Gibson also announced the appointment of Karl H. Wittfoth as staff sales engineer.

Mr. Wittfoth has been employed in the Independent telephone industry for several years in switchboard maintenance. Prior to this, he was foreman

ALPHADUCT UNDERGROUND "B" SERVICE WIRE

ELIMINATES UNSIGHTLY OVERHEAD DROPS

PROVIDES EXTRA PAIR FOR SECOND PHONE

...and no other underground service wire can compare with Alphaduct for sheer ruggedness and trouble free service under unfavorable operating conditions. Alphaduct is engineered to withstand moisture, heat, abrasion, deformation and you get these PLUS FEATURES:

HIGH DIELECTRIC STRENGTH

HEAT STABILIZED POLYETHYLENE INSULATION

MINIMIZED CROSSTALK through control of side to side Capacitance Unbalance

ALUMINUM TAPED for electrical shielding against lightning and interference

CONDUCTORS—annealed copper covered steel for strength

AND IT'S DATED—simplifies your record keeping ...proves Alphaduct's durability

When you buy Alphaduct Underground "B" Service Wire, or any one of Alphaduct's different types of telephone wire—you buy the know-how of the recognized leader in the manufacture of insulated wires for the Independent Telephone Industry.

National Distributors
Automatic Electric Sales Corp.
Northlake, Illinois

Leich Sales Corp.
427 W. Randolph St., Chicago, Ill.

ALPHADUCT
WIRE AND CABLE CO.
NEW BRUNSWICK, N. J.
CHarter 9-8090

Regional Distributors
Buckeye Telephone & Supply Co.
Columbus, Ohio

The Lindsay Telephone Supply Co.
Cleveland, Ohio

Pankey Supply Co.
Charlottesville, Va.

EXTRA Holding Power
QUICKLY Installed
TOUGH For long life

EVERSTICK ANCHORS

For new construction and maintenance — Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resiliant, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

Save Money in the Long Run

NATCO CLAY CONDUIT, economical to install and maintain, is the low cost way to give Underground Telephone Cables permanent protection. Available in a full line of shapes.

NATCO CORPORATION
327 Fifth Ave., Pittsburgh 22, Pa.

of dial switchboard installation at the Siemens and Halske Co., manufacturer of telephone equipment in Germany.

Wittfoth is employed in Leich's Chicago office in the switchboard department.

Kellogg's Bailey Speaks At Anchorage Cut-Over

Great strength of research and supply stands in support of America's Independent telephone companies, members of the Greater Anchorage Chamber of Commerce were told recently by O. C. Bailey, vice president and director of sales of Kellogg Switchboard & Supply Co., communications division of International Telephone & Telegraph Corp.

Mr. Bailey spoke at a special meeting on "Alaskan Communications" held as part of the observance of the cut-over of the city's new 3 million dollar telephone system.

"When SAGE, the American air defense network, was first proposed as a defense," Mr. Bailey explained, "questions arose as to the ability of Independent telephone companies to implement fully the strict requirements for the sophisticated-type of communications demanded. All these doubts have since been dispelled. As a matter of fact one of the very first, and perhaps largest, DC (directional center) sites is that of an Independent telephone company for whom Kellogg engineers, supplies, installs and maintains the complex system."

Mr. Bailey also pointed out that the economic development of an area or a country is largely contingent on the type and extent of its communications.

"The most prosperous nations are those that have developed their communications to a high degree," he said. "Similarly, the most prosperous sections of the United States are those in which quality and quantity of communications exist. It is there that the greatest number of telephones are found."

Paying tribute to the city of Anchorage telephone department, Mr. Bailey said there are almost no parallels in modern day living to the low cost and value of service of communications.

Henry Zinns, city of Anchorage telephone department superintendent and president of the Alaska Independent Telephone Association, was chairman of the meeting.

Clapp Named Sales Head, United Electric Controls

George W. Clapp of Canton, Mass., has been promoted to sales manager of the United Electric Controls Co., Watertown, Mass., S. T. Herr, vice president, has announced.

Mr. Clapp has been with U. E. since 1951 and was formerly a sales engineer and account manager for the nationwide manufacturer of temperature and pressure controls.

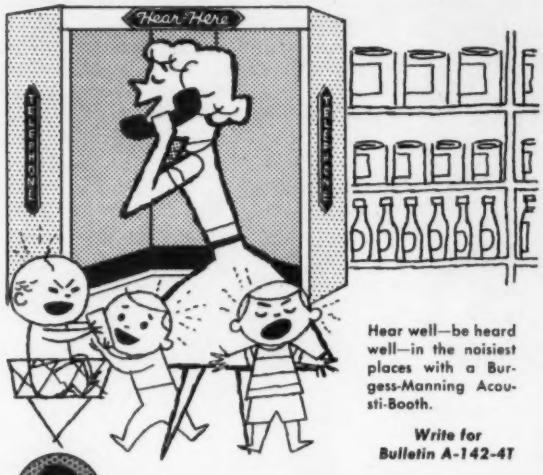
Originally from Quincy, Mass., Mr. Clapp saw military service in France and Germany during World War II.

He is a graduate of the University of Miami engineering college.

Speakers at Anchorage, Alaska's cut-over were, left to right, O. C. Bailey, vice president and director of sales of Kellogg Switchboard & Supply Co.; Lt. Col. Gordon Gray, deputy commander of the Alaskan Communications System; Myron Baskt of ITT's Federal Electric Co. who is project manager for White Alice and Henry Zinns, superintendent of the City of Anchorage Telephone Dept.

No, Mom, the children are not sleeping — you just can't hear them from this —

BURGESS-MANNING ACOUSTI-BOOTH



Hear well—be heard well—in the noisiest places with a Burgess-Manning Acousti-Booth.

Write for Bulletin A-142-4T

BURGESS-MANNING COMPANY

Architectural Products Division

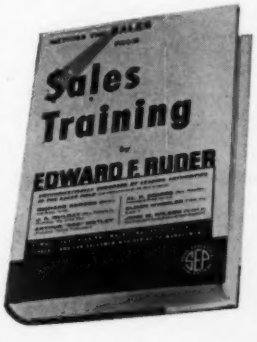
749 East Park Avenue, Libertyville, Ill.

Dallas, Texas

NEW TRAINING BOOK RECOMMENDED BY TELEPHONY

Here is a much-needed book on sales training for use by managers, department heads, superintendents, trainers, schools and libraries.

The newest training techniques are given practical application. Included are indoctrination, refresher and by mail training; memory, reading and speech improvement; and training supplements—sales contests, meetings, manuals, house organs, and new recruiting and hiring methods. This new book is enthusiastically endorsed by the top authorities—Arthur Motley, Pres., *Parade Publications;* Al Seares, V.P., Remington Rand; Elmer Wheeler, Consultant; John Wilson, Retired V.P. Sales, National Cash Register; J. McInay, V.P., Marketing, Ray-O-Vac; Richard Borden, Consultant.



Bound In Beautiful Executive Leatherette

MAIL COUPON TODAY

To: Book Department,
TELEPHONY Publishing Corp.
608 S. Dearborn St., Chicago 5, Illinois

Send me _____ copies of "Getting the Sales from Sales Training" @ $5.95 each.

☐ Payment enclosed (postpaid) ☐ Bill me

Name_____

Address_____

City_____ Zone____ State____

Company_____ Position_____

Support aerial cables with

CF&I Galvanized Steel Strand

The giant steelman reflects CF&I's policy of making only quality steel products for all industries. One of them — CF&I Galvanized Steel Strand — is highly recommended for long-lasting messengers to support aerial telephone cables.

CF&I Strand is flexible and provides positive resistance to corrosion and abrasion.

Made in accordance with ASTM Specification A-122, CF&I Galvanized Steel Strand for guy or messenger wires can also be supplied to individual specifications in seven- or three-wire constructions. For Overhead Ground-Wire, CF&I supplies strand made to ASTM Specification A-363. For quick delivery call the nearby CF&I sales office or see your local electrical distributor.

7066

GALVANIZED STEEL STRAND

THE COLORADO FUEL AND IRON CORPORATION

In the West: THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Farmington (N.M.) • Ft. Worth • Houston • Kansas City • Lincoln • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco • San Leandro • Seattle • Spokane • Wichita

In the East: WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia • CF&I OFFICE IN CANADA: Montreal • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

Douglas President, Koth Vice President of Lenkurt

John J. Douglas, who has been in the Independent telephone industry nearly two decades, is the new president of Lenkurt Electric Co., San Carlos, Cal.

The announcement was made by Donald C. Power, chairman and chief executive officer of General Telephone & Electronics Corp., as arrangements were completed for GT&E to acquire the remaining interest in Lenkurt.

Mr. Power also announced that George F. Koth, an officer and director of Lenkurt since shortly after its founding, has been promoted to vice president and general manager of the carrier and microwave manufacturing company.

Mr. Douglas and Mr. Koth take over the positions formerly held by Lenkurt co-founders, Lennart G. Erickson and Kurt E. Appert, who will continue to be active in the affairs of the company as members of the board of directors.

Mr. Douglas has been serving as vice president and treasurer of the telephone equipment manufacturing and sales companies of GT&E. In this position, he was responsible for all of the treasury, accounting, tax, and insurance functions of those companies.

J. J. DOUGLAS

A native of Chicago, he was graduated from the University of Wisconsin School of Commerce in 1939. The following year, he joined Associated Telephone Services, Ltd., one of the Gary group of companies, as an accountant.

In 1946, he was appointed general auditor of Automatic Electric Co. He was promoted to controller in 1948, and elected vice president and controller in 1955. That same year, after the merger of Automatic Electric into General Telephone, he was elected vice president and treasurer of Automatic Electric.

He later was named to the additional posts of vice president and treasurer of Leich Electric Co., Leich Sales Corp., and Electronic Secretary Industries, Inc., all of which are subsidiaries of GT&E.

Mr. Douglas is a Certified Public Accountant and a member of the American Institute of Certified Public Accountants.

G. F. KOTH

Mr. Koth joined Lenkurt in 1946 as production manager when the company was still in San Francisco. In 1947, when the firm moved to its present location in San Carlos, he became works manager. He was elected a director in 1948, and vice president in 1952.

He headed all production operations at the company's headquarters plant, and, in addition, established manufacturing activities at Lenkurt's subsidiaries in Mexico City and Burnaby, B. C. Before promotion to his new assignment, he was vice president-operations.

Mr. Koth was with Acme Electric Corp., Cuba, N. Y., for nine years and served as factory manager. Previously, he was with General Electric Co.

A native of Wisconsin, he grew up in Pennsylvania and was graduated with a BS degree in industrial engineering from Pennsylvania State College. His professional affiliations include the American Institute of Industrial Engineers.

An Obligation

"Men do less than they ought unless they do all that they can."—CARLYLE.

Spiraflex® CORD

BY GENERAL INSULATED WIRE WORKS, INC.*

*Licensed to manufacture under existing patents.

Telephone cord sets of proved performance backed by General Insulated's unmatched experience and know-how in the manufacture of quality telephone tinsel cordage:

Spiraflex HANDSET CORDS in bright colors with non-staining thermoplastic jackets in solid color extrusions matching color shade and sheen of telephone sets. Also non-staining black Neoprene jacketed cords. Both types available with or without integral moldings and terminations. Furnished in standard or extra long lengths.

STRAIGHT HANDSET AND DESK SET CORDS are available in non-staining thermoplastic constructions in matching colors and in black Neoprene.

GENERAL INSULATED WIRE WORKS, INC.

A DIVISION OF GENERAL CABLE CORPORATION
Providence 5, Rhode Island

North Names W. H. Graham Executive Vice President

The election of William H. Graham as executive vice president of North Electric Co. has been announced by William Tucker, president. Mr. Graham assumed his duties on Nov. 2.

Mr. Graham is a native of Dayton, O. Upon graduation from the University of Dayton, he joined National Cash Register Co. where he spent 10 years in various manufacturing management positions.

W. H. GRAHAM

From 1947 to 1955, Mr. Graham was a manufacturing executive with Crosley division, Avco Mfg. Corp. in Cincinnati, O. with responsibility for three large plants.

From March 1955 to early this year, Mr. Graham was executive vice president and chief executive officer of the Magnavox Co. of Tennessee, which is a totally owned subsidiary of the Magnavox Co. and includes five plants.

In February 1959, Mr. Graham resigned to become president of Metals Engineering Corp., Greeneville, Tenn., manufacturers of tools, dies, and metal stamping fixtures.

Carlson Resigns; Schram Is Comptometer President

A. E. Carlson has resigned from the presidency of the Comptometer Corp. of Chicago, it was reported on Nov. 6, for reasons of health. He is succeeded by J. A. Schram, who has been a director and head of the company's Burke Golf division.

Mr. Carlson will continue with Comptometer as a director and in the capacity of a financial adviser.

Mr. Carlson was elected president and a director of Felt & Tarrant Co. (predecessor of Comptometer Corp.) in 1956.

Under Mr. Carlson's administration, Comptometer Corp. expanded its activities through the acquisition of several companies, including:

Union Thermal Electric Corp. of Evanston, Ill.; Burke Golf Equipment Co. of Chicago; Radiation Electronics Corp. of Skokie, Ill.; Nebraska Sales Book Co. of Lincoln, Neb.; and U. S. Business Forms of Lincoln, Neb.

Comptometer also acquired the rights to manufacture, sell, and lease the newly-developed Electrowriter.

Prior to that, he served as executive vice president and as director of Theodore Gary & Co. Altogether, he was associated with the Gary companies for a period of 27 years.

He also served as president and director of the Associated Telephone & Telegraph Co., Gary, Ind., of which Automatic Electric is a subsidiary.

Stromberg Appoints Connon Market Research Head

John A. Connon, formerly a management consultant in Denver, Colo., has been appointed director of mar-

Prepare for
DISTANT DIALING
with
UNIVERSAL
COMPUTER INTERCEPT Toll or Local and Toll End Office or Toll Center
DIGIT ABSORBERS for 2-5 Numbering
Code-to-Selective RINGING CONVERTERS

SOLD THRU ALL LEADING TELEPHONE DISTRIBUTORS
FOR FULL PARTICULARS PLEASE WRITE DIRECT TO
UNIVERSAL
OR CONSULT YOUR DISTRIBUTOR FOR DETAILS

TELEPHONE DIVISION
UNIVERSAL
CONTROLS CORPORATION
OFFICE AND PLANT-CARROLLTON, TEXAS
MAIL ADDRESS-P. O. BOX 13122, DALLAS 20, TEXAS
Telephones: Carrollton 3885 — Dallas CH 7-3123

ON ORDERS DIRECT TO UNIVERSAL, BILLING WILL BE THRU YOUR PREFERRED DISTRIBUTOR.

A complete telephone directory publishing service

300 Montgomery Street
San Francisco 4,
California

631 Braniff Building
Exchange Park North
Dallas 35, Texas

2811 Band Street
Everett, Washington

116 South Rusk Street
Kilgore, Texas

121 S.W. First Street
Beaverton, Oregon

130 East Lime Avenue
Monrovia, California

Here's Safer, Easier Reel Handling

●Here's the reel jack that is strong and stable without hard-to-handle extra weight. An aluminum alloy housing reduces overall weight by 21 pounds, yet maintains full 10-ton capacity. "T" shaped laminated oak base gives solid, safe foundation. Single acting mechanism provides easier operation. Handles reels to 84" dia.; weighs 83 lbs. Furnished with 5' lever bar.

Write for full data on Reel Jack No. A-1029 and other Simplex Utility Jacks.

Pole Pulling and Straightening Jacks—Save time, cut work crews necessary to pull, straighten or move poles. No. A-1538 has aluminum housing, 15-tons capacity, weighs 63 lbs.

All-Purpose Jack — No. 310A lifts, pulls, pushes at any angle. Four lift points, 15-tons capacity.

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS

SIMPLEX JACKS

TEMPLETON, KENLY & COMPANY
2557 Gardner Road, Broadview, Illinois

keting research at the Stromberg-Carlson Division of General Dynamics Corp., according to announcement by Robert C. Tait, president of the division.

Mr. Connon will direct and coordinate all marketing research activities in Stromberg-Carlson's various product divisions.

J. A. CONNON

A native of Bayonne, N. J., Mr. Connon is a graduate of Stevens Institute of Technology, where he earned a mechanical engineering degree.

Prior to joining Stromberg-Carlson, he served as a special representative of the U. S. Rubber Co. in New York and Los Angeles; as a consultant with Booz, Allen & Hamilton, New York; as special assistant to the marketing vice president of the Hamilton Watch Co., Lancaster, Pa.; and as general manager of the Hathaway Instrument Division of the Hamilton Watch Co., in Denver.

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

KILLOREN COMPANY
Construction crews—Installers
Cable Splicers
30 years experience
136 N. State St. Appleton, Wisconsin
REgent 3-5549

DAVIS
CONSTRUCTION COMPANY
UTILITY PLANT CONSTRUCTION
45 North Clark Street • Sullivan, Missouri

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

Telecommunication Consultants
P.O. BOX 6224, MOBILE, ALABAMA
TELEPHONE GR 7-7020 OR GA 6-7767
"Complete Engineering Services"

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

Electric Power and Communications Construction
E. & C. CONTRACTING CO.
Box 191
Paoli, Indiana
Phone 7821

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

POLES

CREOSOTED SOUTHERN YELLOW PINE
LOW RESIDUE COAL TAR DISTILLATE
"Truck Delivery Our Specialty"
Baker Wood Division, D. B. Frampton & Company
P.O. BOX 520 MARION, OHIO

FOR ALL OF YOUR CENTRAL OFFICE AND PBX INSTALLATIONS, MODIFICATIONS, AND ENLARGEMENTS, IT'S THE
T. E. I.
TELEPHONE ELECTRONICS INSTALLATION CORP.
2222 E. Thirtieth St., Erie, Pa.
MAY WE BE OF SERVICE TO YOU?

ARCHIE DAVIS, INC.
UNDERGROUND CONDUIT AND MANHOLE CONSTRUCTION
BURIED CABLE—CABLE PLOWING
POLE LINE CONSTRUCTION
522 Forest St., Jacksonville 2, Florida
Telephone: Elgin 3-7501

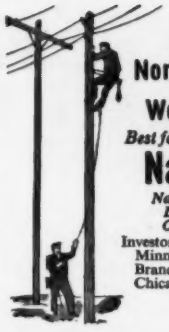
Communication Equipment Installation
Maintenance Modifications — Additions
Buy — Sell — Trade
Any Make — Type
Midwest Communications Service Co.
P.O. Box 3008 Telephone SW 9-4311
Lubbock, Texas

Professional Engineers - Contractors
Central Office Installation
Cable Splicers, Plant Crews, Installer Repairmen
HENKELS & McCOY
PHILADELPHIA
1800 N. Johnson St., Elkhart, Ind., Tel. 3-2915

FREE Estimates
PLOWING
(Buried wire & cable)
Call Collect
MULLEN CONSTRUCTION COMPANY
2002 E. Wisconsin Ave. REgent 4-9881
Appleton, Wisconsin

Whether a Winch Line Hook or a complete Line Body check your requirements with

UTILITY TOOL & BODY CO.
CLINTONVILLE, WISCONSIN
UT&BCo


Northern white cedar
•
Western red cedar
Best for durability... poles from
National Pole
National Pole and Treating Division, Minnesota and Ontario Paper Company
Investors Building • Minneapolis 2, Minn. Telephone FEderal 8-8881.
Branch Office: Prudential Bldg., Chicago • Plant: Minneapolis.

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. Portsmouth, Va.
New York, N. Y. Philadelphia, Pa.
Savannah, Ga.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co.—Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

RECONDITIONED TELEPHONES

W.E. & Kellogg late type #500 sets with new black cases. Reconditioned with st. line ringers.
Price with dial.....$19.50
Price dial blank.....$16.50
Price with dial, less ringer..$16.50
(Install your cycle ringer)

W.E. #302 ★ A.E. #40 ★ Kellogg #1000 ★ Stromberg-Carlson #1243 self contained desk sets.
Recond. With met. dial and st. line ringers. Cycles on request.
Price with dial.....$12.50
Price dial blank.....$10.50
As is working order:
Price with dial.....$10.50
Price dial blank.....$ 8.50

LEICH 901 MAGNETO DESK OR WALL
Late type instruments with 1600 ohm ringers & strong generator for those long rural lines. Can convert to C.B. or dial.
Price recond. with coil cord..$20.50
Price as is working order....$15.00

TERMS: OPEN ACCOUNT FOR YOUR INSPECTION TO RATED FIRMS

REQUEST CATALOG: wire, cable, trucks, hardware, switchboards, test sets, parts, tools.

BOHNSACK EQUIP. CO.
GERMANTOWN, N. Y.
Telephone 213 or 214

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

REPAIRMAN to rebuild telephones and small switchboards. Steady, good working conditions. Middle aged man preferred. Telephone Repair & Supply Co., 1760 W. Lunt Ave., Chicago 26, Ill.

CENTRAL OFFICE EQUIPMENT REPAIRMAN with some cable experience. Western electric TPS and XY TPL equipment. Immediate opening in West Texas. Send complete résumé to Box No. 4310, c/o TELEPHONY.

EXPERIENCED C.O.E. INSTALLER; dial and manual equipment. Must be familiar with different types of equipment. In your reply please state age, experience, references, types of equipment worked on, salary and when available. All replies confidential. Write Box No. 4320, c/o TELEPHONY.

TELEPHONE ENGINEER—Must be an electrical engineering graduate with experience in plant, traffic and commercial departments. This is an unusual opportunity for an engineer with managerial and administrative ability to use and develop all of his possibilities. Location—Southern Connecticut—at the headquarters of a nation-wide utility company. Reply sending a complete résumé to Box No. 4322, c/o TELEPHONY.

HELP WANTED

CABLE SPLICERS, LINEMAN, Equipment Installers, Station Installers, Outside Plant Engineers, and Inside Plant Engineers. E. & C. Contracting Co., Box 191, Paoli, Ind.

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

BOOKKEEPER FOR TELEPHONE COMPANY serving 3,000 subscribers in Central Kansas. Must be qualified to handle REA accounting. State experience, salary expected and when available. References required. Write Box No. 4317, c/o TELEPHONY.

CENTRAL OFFICE REPAIRMAN experienced in step equipment for progressive Independent telephone company in a midwestern state. Good wages, vacation and other employee benefits. Reply giving education, experience, date available and other personal data. Replies confidential. Write Box No. 4318, c/o TELEPHONY.

MANAGER FOR R.E.A. Financial Cooperative serving 3200 stations from 10 recently converted dial exchanges. Top fringe benefits including pension plan. Submit education, experience, references and salary expected in letter of application. Write Howard Brezee, President, Deuel Telephone Co-operative Association, Clear Lake, S. D.

MAGNETO HAND SETS

WALL OR DESK

LEICH 901

(RECONDITIONED)

- **1600 Ohm Ringers**
- **Neoprene Cords**

No Changes Necessary to Use as Desk or Wall Telephone

BUCKEYE TELEPHONE & SUPPLY CO.

1250 Kinnear Rd. HU 8-0655 Columbus 21, Ohio

WANTED TO BUY

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

WANT TO PURCHASE SMALL TELEPHONE PROPERTY in the Middle West. State price and full details. Write Box No. 4319, c/o TELEPHONY.

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

NEW WESTERN ELECTRIC straight Neoprene cords—H4BF—for 500 series telephone sets at $.40 each. Illinois Consolidated Telephone Co., P.O. Box 560, Mattoon, Ill.

TWO (2) COMPLETE CENTRAL OFFICES (Dial), 650 lines, serving 3,052 stations. Too small for our expansion. Will sell all or part. Available November 1960. Can be purchased for less than $75.00 per line. Address inquiries to Purchasing Agent, Winter Park Telephone Co., 132 East New England Ave., Winter Park, Fla.

200 WESTERN ELECTRIC 302 EW hand telephone sets recently removed from service. Clean and in excellent working condition, priced to sell at $10.50 each. Illinois Consolidated Telephone Co., P.O. Box 560, Mattoon, Ill.

TELEPHONES FOR SALE, as removed from service. S-C 1244W; S-C 1212AB; Kellogg 1000 & 900 BAX; Monophones 3-N-4020-BO & L 500 BO (wall); Leich 601 A & 90; Federal Desk; North Electric 8 & 6. Also 1000 insulated screw type wireholder. 7000 1½ inch cable rings. Calhoun Telephone Co., Homer, Mich.

2 POSITION KELLOGG SWITCHBOARD, 300 line Common Battery 40 line Magneto, 2 trunks dial, ringing buttons for five (5) frequency for both positions—charger and ringing machine goes with this board. Brooklyn Mutual Telephone Co., Brooklyn, Iowa.

TELEPHONE DIRECTORIES FROM SUTTLE—WILL SAVE YOU MONEY! A complete service—planning, ad sales, compiling, printing. *Guaranteed* to bring higher revenue at lower cost. Write or call for full details. Suttle Directory Company division of Suttle Equipment Corporation, Lawrenceville, Illinois. Lawrenceville 782.

FOR SALE

USED Fir 10′ Arms, 30″ Crossarm braces, drop-type tramps, miscellaneous hardware—½ price. Also re-galvanized hardware like new—¾ price. Utilities Equipment Co., Inc., P. O. Box 8044, Memphis, Tenn.

WILL SACRIFICE—MODEL 3730 Printing Addressograph, equipped with back printer and double front printer. Very good condition, only two years old. Machine located in Midwest. For information write to Box No. 4321, c/o TELEPHONY.

ONE NORTH MCBERTY MCX 500 selector type dial switchboard. Equipped with 250 lines. Now crated and ready for pick up.....$5,000.00

TWO NORTH ALL RELAY MCX 200 (broadspan) switchboard, charger, batteries, main frame, and powerboard. Both equipped 100 lines, 200 line capacity. Available after February 1960 .....each $2,000.00

ONE LEICH ALL RELAY SWITCHBOARD — type 2B200, charger, batteries, powerboard, and trunk bay. Equipped 90 lines. Available in spring 1960.....$3,000.00

USED DIAL TELEPHONES: 443 Western Electric 302-D; 84 North 9800; 29 North 9000; 208 Leich 615; 71 Stromberg-Carlson 1243; 78 Stromberg-Carlson 1250. Prices from $5.50 to $6.50 each.

Polar Telephone Corp., Park River, N. D.
Phone BUtler 4-7221

FOR SALE

NEW—COOK XB, TERMINALS, 16 pair, unprotected, with 5-ft. stubs. @ $5.00 each. Stromberg #1443—desk sets, like new, W/dials, St. line. Coiled cords, @ $12.00 each. Drop wire—C—span clamps, new, $5.00 per C. Calculagraphs, #33—used $35.00 each. Prices are F.O.B. Chicago, Ill. Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.

1 RECTIFILTER 1027 B.R., 5 amp.		$ 25.00
1 rectifilter 1044 G.R., 1.0 amp.		35.00
1 rectifilter 1027 R., 1.0 amp.		35.00
4 sub cycles model S 20 cycle		25.00
2 #121 S.C. cordless switchboard with 5 trunks and 16 lines	each	200.00
8 phantom coils	each	2.00
20 kick coils	each	1.00
400 assorted condensers	each	.10

Mt. Vernon Telephone Co., Verona, Wis.

NON-RESIDUAL
CONTACT BURNISHER
FOR USE ON ANY TYPE CONTACT
- No residue.
- No filings—no grit or dust no film.
- Economical—flexible—insulated.
- Each one comes in vinyl case.
- Balanced—length 3", 2" blade, 3/16" wide x .007" thick.

SAMPLE TRIAL PKG. OF 10—$3.50. 50 TO 950—24¢ each.
P. K. NEUSES, INC.
1207 W. Euclid Ave., Arlington Heights, Ill.

ORDER FROM L. E. S. AND PAY LESS
CABLE SPLICING TOOLS & SUPPLIES
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. CS.
LINE EQUIPMENT SALES
46 W. Harrison St., Chicago 5, Ill.

SPECIFY TELERING for
Dependable and Economical Telephone Ringing Power Equipment.
Engineered for complete satisfaction.
Manufactured by
TELKOR, INC. Elyria, Ohio

REPAIR SERVICE
Of Telephones, Dials, Operators' Head Sets
A.E. L965 Hand Test Tel.
W.E. 1011 Test Tel.
B. Y. DIAL SERVICE
411 WEST 22ND — HIGGINSVILLE, MO.
Workmanship Guaranteed • Speedy Service

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION
The Weikel Line Company, Inc.
FORT WAYNE, IND.

A RIVER TO CROSS?

Submarine Cable — 25 pr #19 ga., double paper, lead covered, double wire armor, jute protected. 800 ft per reel: price per reel $800. (18 reel only)

Direct Burial, lead cov., 10 pr. #22 ga. PILC, double steel tape armor, jute. 1800 ft (one reel) $200. M ft. 26 pr #19 ga. PILC, double steel tape armor, jute. (1400 ft only) $400. M ft.

Plastic Burial Cable 6 pr #19 ga. (stranded) with 1 #16 ga. quad. shielded PVC ins. & jacket wire armor. (sample on request)

Lead. 51 pr #19 ga. plus 4 Video pr. #16 ga. (copper shielded) poly eth. ins. (1300 ft only) $750. per M ft.

Special Purpose cable available for immediate delivery at special low prices. Interior & exterior types.

Lead, plastic and braid Switchboard cable available at special prices.

Twisted Drop Wire #104, Copperweld 40% Neoprene covered, $50. per M ft.

Twisted Pair Drop #20, Copperweld 40%, $15. per M ft.

QUADDED CABLE lead

7 quad #19 ga. PILC (100,000 ft) 3-4 M ft. per reel, $200. per M ft.

37 quad #19 ga. PILC 1050 ft, $650. per M ft.

7 quad #19 ga. Plastic Superior, 5300 ft, $250. per M ft.

11 pr #19 ga. PILC 1400-1600 ft reels, 4000 ft total, $200. per M ft.

26 pr #19 ga. Neoprene 1400 ft (not coded), $250. per M ft.

101 pr #22 ga. Plastic 1300 ft, $750. per M ft.

303 pr #22 ga. Ankoseal 775 P, 2000 ft, $2. per foot.

Flexible Neoprene cables for elevator and other mobile use from 5 pair to 40 pair (also unpaired multiconductor).

Drop Wire, Neoprene (reinforced) #18 ga. Copperweld. Slightly used A-1 condition, in coils of approx. 500 ft lengths, $10. per M ft.

Satisfaction Guaranteed—we ship on approval—freight allowed on carloads

Telectric Co.

1218 VENICE BOULEVARD Telephone: Richmond 8-2249 LOS ANGELES 6, CALIF.

Index to ADVERTISERS

	Page
Acker Co., Geo. M.	—
Acme Electric Corporation	—
Acme Visible Records, Inc.	33
Advanced Communications Engineering	68
Airtronics International Corp.	17
Alphaduct Wire & Cable Co., The	73
Altec Lansing Corp.	—
Aluminum Company of America	—
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	—
American Steel & Wire Co.	66
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	79
Auburn Machine Works, Inc.	—
Automatic Electric Sales Corp.	16, 40-41, 58-59
Avnet Electronics Corp.	—
Baker Wood Division	79
Barber Advertising Specialties, Walt	—
Barber-Greene	—
Bell Telephone Laboratories, Inc.	45
Benner-Nawman, Inc.	69
Bethlehem Steel Co.	—
Berry & Co., L. M.	—
Bishop Manufacturing Corp.	—
Bohnsack Equip. Co.	79
British Insulated Callenders' Cables, Ltd.	—
Brown Mfg. Co.	—
Budelman Electronics Corporation	—
Buckeye Telephone & Supply Co.	53, 80
Burgess-Manning Company	75
Burroughs Corp.	31
Butler Manufacturing Co.	—
B. Y. Dial Service	81
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	78
Cable Construction Co.	78
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Chance Co., A. B.	55
Charles Machine Works, Inc.	—
Cleveland Inst. of Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	75
Commercial Cord Company, Inc.	52
Communication Equipment & Engineering Co.	—
Comptometer Corporation	—
Cook Electric Company	—
Copperweld Steel Co.	—
Crane Inc., Carl C.	78
Cushman Motor Works, Inc.	—
Dahl Co., Inc., George W.	—
Dakota Engineering, Inc.	—
Dampp-Chaser, Inc.	—
Davis Construction Co.	78
Davis, Inc., Archie	79
Dial Haven, Inc.	—
Diamond Expansion Bolt Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Company	—
Duo-Safety Ladder Corp.	—
E. & C. Contracting Co.	78
E.T.A. Products Co. of America	—
Electric Specialty Co.	12
Everstick Anchor Co.	74
Exide Industrial Division— The Electric Storage Battery Co.	—
Fanner Manufacturing Co.	49
Fitchburg Engineering Corporation	72
Foley Construction Co., Robert E.	78
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Insulated Wire Works	76
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Gladwin Plastics, Inc.	—
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	18
Graybar Electric Co.	10-11
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris McBurney Company	—
Henkels & McCoy	78
Highway Trailer Company	—
Hirsch Organization Inc., Gustav.	54
Holan Corp.	37
Indiana Steel & Wire Co.	—
International Business Machines Corp.	83
Irwin Auger Bit Co.	70
Jet Line Gun Company	—
Johns-Manville	57
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	6-7, 61, 64-65
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	78
Klein & Sons, Mathias	48
Kleinschmidt	—
Koiled Kords, Inc.	13
Koppers Co., Inc. Wood Preserving Div.	—
Leich Sales Corporation	14-15
Lindsay Telephone Supply Co.	—
Line Equipment Sales	81
Lorain Products Corp., The	5
Magnolia Chemical Company, Inc.	62
Malleable Iron Fittings Co.	—
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	78
Midwest Communications Service	79
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Mullen Construction Co.	79
Murphy Engineering Laboratories	67
Natco Corporation	74
National Pole & Treating Div.	79
National Standard Co.	—
National Telephone Supply Co.	Back Cover
Neubauer Mfg. Co.	—
Neuses, Inc., P. K.	81
North Electric Company	28-29
Okonite Company, The	—
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Osmose Wood Preserving Co.	—
Outdoor Outfitters Inc.	—
Owens-Illinois	44
Page & Hill, Inc.	72
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	—
Plastic Wire & Cable Corp.	—
Porter Inc., H. K.	—
Preformed Line Prdoucts Co.	50-51
Puregas Equipment Corp.	—
Radio Frequency Labs, Inc.	63
Railway Communications, Inc.	—
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Company	8-9
Recordak Corp.	35
Reichhold Chemicals, Inc.	—
Reliable Electric Company	43
Republic Creosoting Company	—
Rex Corporation, The	47
Reynolds Metals Co.	—
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Co.	—
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Siemens Edison Swan, Ltd.	—
Sierra Electronics Corp.	71
Sloan, Cook & Lowe Co.	78
Stainless, Inc.	—
Stampings, Inc.	—
Stewart Bros.	—
Stromberg-Carlson Co.	2-3
Superior Cable Corporation	—
Suttle Equipment Corporation	60, 80
Taylor-Colquitt Co., The	—
Telecommunications Consultants	78
Telectric Co.	81
T.E.I. Corp.	79
Tele-Muff Co.	—
Telkor, Inc.	81
Templeton, Kenly & Co.	78
Thornhill Publishing Co.	78
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	78
United Electric Controls Co.	71
United States Independent Telephone Association	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	—
United States Motors Corp.	56
United States Steel Corp. American Steel & Wire Co.	66
Creosote Division	—
Universal Controls Corp.	77
Utility Service Co., Inc.	—
Utility Tool & Body Co.	79
Warren Mfg. Co., Inc., The	—
Weikel Line Company	81
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	78
Wiremold Co., The	46
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

WESTERN REPRESENTATIVE:
McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2727 Oak Lawn Ave., Dallas 19, Tex.; 404 Times Bldg., Portland 4, Oregon.

IBM SERIES /50

Low-cost punched card system speeds customer billing, controls complete revenue accounting

The IBM **Series/50**—a complete punched card system—offers telephone companies the following advantages of low-cost data processing:

- automatic customer billing
- distribution of revenue
- in-plant inventory
- payroll and related records
- automatic by-products
  - settlement data
  - toll studies
  - rate changes
  - directory lists

Like all IBM data processing equipment, **Series/50** may be purchased or leased. For more information, call your local IBM representative.

IBM® DATA PROCESSING

Nicotap

THE FAST, DEPENDABLE Nicopress WAY OF MAKING LINE AND DROP WIRE TAPS

THE NICO-TAP IS SPLIT

THERE IS NO NEED OF CUTTING THE LINE TO MAKE THE CONNECTION—JUST SLIP THE SLEEVE OVER THE LINE WIRE AND COMPRESS

12 BWG TO 12 BWG
Stock No. T2-109D

12 BWG TO No. 17-18 DROP WIRE
Stock No. T2-109 x 045D

17-18 B&S TO 17-18 B&S
Stock No. T2-045B

Manufactured in many different sizes and combinations

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company

THE NATIONAL TELEPHONE SUPPLY COMPANY

ASK YOUR JOBBER